To our customers,

On April 1st, 2010, NEC Electronics Corporation merged with Renesas Technology Corporation, and Renesas Electronics Corporation took over all the business of both companies. Therefore, although the old company name remains in this document, it is a valid Renesas Electronics document. We appreciate your understanding.

FAQs

Last Updated: August 20, 2004

Outline

32-bit		M32R Family *1 (Aug. 20, 2004) UP M16 Family (Discontinued Products) (July 5, 1999)
16-bit	**M16C Family**	M32C/80, M16C/80 Series *2 (Aug. 20, 2004) UP M16C/60, M16C/30, M16C/Tiny, M16C/20, M16C/10 Series (Aug. 20, 2004) UP R8C/Tiny Series (Aug. 20, 2004) UP
	7700 Family	79xx Series *3 (Aug. 5, 2004) 77xx Series *4 (Aug. 5, 2004)
8-bit		740 Family *5 (Aug. 5, 2004)
4-bit		4500 Series (Feb. 5, 2004) 720 Series (Nov. 20, 2003)
Accessories		Accessory Tools (Nov. 5, 2003)
Others		User Registration, License ID, Guarantee and Repair, etc. (Sep. 5, 2003)

*1. M32R Family : M32R/ECU Series (M32R/E Series are maintenance products.)
*2. M32C/80 Series is 32/16-bit MCU.
*3. 79xx Series : 7900 Series
*4. 77xx Series : 7770 Series (7700, 7751 and 7790 Series are maintenance products.)
*5. 740 Family : 38000, 740, 7200, and 7600 Series (7450, 7470, and 7500 Series are maintenance products.)

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FAQs

Outline

Last Updated: April 5, 2003

FAQs (Frequently Asked Questions) are questions we are most often asked by our customers. We provide the each FAQ along with the appropriate answer, in question & answer form. The FAQs you find here are concerning Renesas MCU Tools. The contents include the previous month's support information, initially distributed by electronic mail, with new FAQs and revised answers, as well as any new information we need to inform to our customers. We hope the information provided here helps our customers solve any questions or problems that have come up while using our products.

About FAQs Listings

Renesas FAQs are organized as follows:

1. **FAQs Index** (FAQs Top Page) lists MCU Family, Series, and Type. (32-bit to 4-bit, Accessories order)

2. **Family/Series Table of Contents** (Page Sample) lists each product by function and application. (Programming Tools, Debugging Tools, Emulator, Programming Adapters, Accessories order)

3. To browse **the FAQs pages for each product** (Page Sample), click on an item in the table of contents on the top of the page (please note that the FAQs pages for products which have very few FAQs do not have the table of contents) to jump to the corresponding FAQ questions. The questions will be listed in order of the latest published date. When the content of an FAQ is revised, the order of the listing will not change, only the date of revision. Click on a question to view the answer.

4. **Each FAQ item** (Page Sample) is listed with a last revision date in blue characters. However, items from September 1999 or earlier do not include any date.

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FAQs

16-bit M16C/60, M16C/30, M16C/Tiny, M16C/20, M16C/10 Series

August 20, 2004

MM (Jan. 7, 2003)	Maskfile Converter MM
HEW (Aug. 20, 2004) UP	Integrated Development Environment (attached to M3T-NC30WA) "**H**igh-performance **E**mbedded **W**orkshop"
TM (Aug. 5, 2004)	Integrated Development Environment (attached to M3T-NC30WA)
SQMlint (June 21, 2004)	MISRA C Rule Checker
M3T-NC30WA (May 8, 2003)	C Compiler Package for M16C/60,30,Tiny,20,10 and R8C/Tiny Series (with AS30, HEW, TM and M3T-PD30SIM)
M3T-MR30 (Aug. 20, 2002)	Real-time OS (Development kit M3T-MR30K and Mass Production Contract M3T-MR30S)
M3T-PD30SIM (June 5, 2003) (Originally PDB30SIM)	Simulator Debugger for M16C/60,30,Tiny,20,10 and R8C/Tiny Series (attached to M3T-NC30WA)
M3T-PD30F (Apr. 5, 2004)	Emulator Debugger for M16C/60, M16C/Tiny Series
M3T-PD30 (Apr. 5, 2004) (Originally PDB30)	Emulator Debugger
PDSDK COM Kit (Nov. 19, 2002)	Debugger Customization kit
M306xxT(2)-CPE (Oct. 20, 2003)	Compact Emulator
PC4701 (Oct. 20, 2003)	Emulator for M16C, 7700, 740 Families PC4701U (Now!) PC4701M/PC4701HS/PC4701L/PC4700H/PC4700L (Discontinued Products)
PC7501 (Oct. 20, 2003)	Emulator for M16C Family
M306xxTx-RPD-E (Apr. 4, 2003)	Emulation Pod for M16C/60 Series
M302xxT-RPD-E (Apr. 4, 2003)	Emulation Pod for M16C/20 Series
M301xxT-RPD-E (Feb. 20, 2003)	Emulation Pod for M16C/10 Series
PCA741xx-xxxx (Dec. 20, 1999)	Programming Adapter
Accessories (Nov. 5, 2003)	Accessory Tools
Others (Sep. 5, 2003)	User Registration, License ID, Guarantee and Repair, etc.

M16C/60,30,Tiny,20,10 Series Index | FAQs Index

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MM Maskfile converter

See Tool News for this product

Last Updated: January 7, 2003

Contents

- File Code
- Mask File
- Part Number
- Hexadecimal Data File *Updated*
- Data for Setting the Mask Available Area
- Mask Option
- Execution Environment
- Error Message

File Code

- Is the file code the accumulated value of the hexadecimal data? What is the difference between the file code and the previously used checksum value? (Aug. 25, 2000)
- When mask files are generated from two programs that contain just one differing table data, the file codes for both mask files are the same. How can I be sure that the mask files have been correctly generated? (Jun. 20, 2001)
- Is it OK that file codes created with different version MMs differ? (Jun. 20, 2001)
- I forgot to write down the file code. How can I look it up? (Jun. 20, 2001)

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Mask File

- Can I download the mask file to the debugger? (Jun. 20, 2001)
- How can I compare the contents of the OTP-version file and the **.MSK file I created with the Maskfile converter. (Aug. 25, 2000)
- How is the reliability of the mask data secured for a floppy disk-based mask ROM order?
  When I choose the EPROM-based mask order, I have to prepare 3 sets of EPROMs. But, when I choose the floppy disk-based mask order, I just need to prepare one data file. (Apr. 5, 2000)
- How can I confirm the hexadecimal data in the mask file? (Jun. 20, 2001)
- Is a mask file different from an ordinary hexadecimal data file? (Jun. 20, 2001)
- I can't find the mask file. (Jun. 20, 2001)

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Part Number

- I want to specify the command prompt input in lower-case letters and the part number in upper-case letters, using MM for the

command type. It is acceptable to mix characters like this? (Jun. 20, 2001)

- Even if I do not know the part number yet, can I ask Renesas to prepare the mask file generation? (Apr. 5, 2000)
- When I send a mask ROM order on a floppy disk, do I have to input the MCU type data at a certain address with ASCII code? (Apr. 5, 2000)
- Do I have to specify the product name in the data area? (May 12, 1999)

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Hexadecimal Data File

- When I use an Intel HEX file created with IAR?fs development tool, I get a warning that there are multiple end records. How can I fix this? (Jan. 7, 2003)*New!*
- When I use MM to process an Intel HEX file that was created with a third-party cross tool, I get an error. (Dec. 20, 2002)
- I get an error when I specify my program file (hexadecimal file) with the MM Create Mask File Wizard. What's the problem? (July 5, 2002)
- I can not select extension ".hfd" (output file of the OSD font editor) with MM V.3.00 Release 1. Please let me know how to do it. (Apr. 22, 2002)
- Is it possible to create a mask file from a HEX file, regardless of the assembler used, as long as the target MCU is the 4500 Series and the object file is formatted with Intel HEX format in the following bit alignments: (Oct. 5, 2000)
  - Lower 5 bits of hexadecimal word data are placed in addresses 0-3FFF
  - Upper 5 bits of hexadecimal word data are placed in addresses 4000-7FFF
- Can the mask process be performed even when several data share the same address? (Jun. 20, 2001)
- Is it possible to create a mask file from an object file that was created using a partner assembler in Intel HEX format? (Oct. 5, 2000)
- Does the MM determine the end record number for Intel HEX format files (the end record is determined as one line)? (Jun. 20, 2001)
- Can I generate an Intel HEX file with the MM? (Jun. 20, 2001)
- What record types does MM generate from the mask file in the Motorola S format? (Aug. 25, 2000)
- I want to upload the hexadecimal data from the ROM writer to my PC and then generate mask data from the hexadecimal data by using MM. Is it possible? (Aug. 25, 2000)
- Are there restrictions on hexadecimal data file names? (Jun. 20, 2001)
- Does MM register incorrect hexadecimal data in mask files? (May 12, 1999)
- Does MM manipulate hexadecimal data files? (May 12, 1999)
- Does a hexadecimal data file require an offset as when working with an EPROM? (May 12, 1999)

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Data for Setting the Mask Available Area

- I am using MM V.3.00 Release 1 and I have specified the part number and use of the data for setting the mask available area in the MCU information registration. But I cannot input the data for setting the mask available area using the Create Mask File wizard. (Apr. 22, 2002)
- I specified MM to write a certain data in a blank area of the mask file. But the hexadecimal data file extracted from the mask file doesn't seem to include the specified data. Why is that? (Aug. 25, 2000)
- I want to confirm the data which MM filled in the unused area of the mask file. Is it possible? (Jul. 21, 2000)

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Mask Option

- What are the "mask option" set in the MM? (Jun. 20, 2001)

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Execution Environment

- Can't I execute the MM execute file in MS-DOS? (Jun. 20, 2001)

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Error Message

- I am getting the error message "Data-file column exceed 255". How should I deal with it? (Sep. 5, 2001)
- I am getting the error message "Can't create Mask file". How should I deal with it? (Sep. 5, 2001)
- I am getting the error message "Can't create HEX file". How should I deal with it? (Sep. 5, 2001)
- I am getting the error message "Can't open file *filename*". How should I deal with it? (Sep. 5, 2001)
- I am getting the error message "Invalid Load Address". How should I deal with it? (Sep. 5, 2001)
- I am getting the error message "Illegal ROM Data file name". How should I deal with it? (Sep. 5, 2001)
- I am getting the error message "Illegal file format". How should I deal with it? (Sep. 5, 2001)

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HEW (HEW3 or later)

Integrated Development Environment
"**H**igh-performance **E**mbedded **W**orkshop"

Please also refer to this **FAQs** about HEW
See **Tool News** for this product

Last Updated: August 20, 2004

- I am currently using NC8C V.5.30 Release 1. When creating a project, do the default option settings include output of debug information? (Aug. 20, 2004) NEW
- When I select Release as the build configuration, I get a build error, but when I select Debug, the program is compiled normally. Why does this happen? (July 5, 2004)
- HEW3 builds the file I have opened in the editor, rather than the specified file (selected from the tree in the Project tab of the workspace window). What's the problem? (Mar. 5, 2004)
- If a compiler error occurs while I am executing a build, how can I stop the build? (Dec. 22, 2003)
- I am trying to create a new project workspace using HEW, but nothing appears in the Project Type column, and I cannot create a workspace. What is the problem? (Dec. 22, 2003)
- I installed M3T-NC30WA, which includes HEW, on a PC that is already has installed with an HEW environment. However, even when I start-up the HEW program, M16C is not displayed as the toolchain. (Dec. 22, 2003)
- How can I generate a Motorola S format file? (May 10, 2004)
- How can the link order of a relocatable file be changed? (Sep. 22, 2003)
- When HEW calls the linker, it sorts all relocatable files in alphabetic order. How I can make HEW link NCRT0 as the first file? (May 10, 2004)

FAQ Index

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TM* Integrated Development Environment

* TM is bundled with Renesas C compiler package and assembler package

See Tool News for this product

Last Updated: August 5, 2004

Contents

- TM V.3.20, V.3.20A Internal Error (Feb. 20, 2004)
- Install: How to install TM
- Project: How to create and run a project
- Source File: How to add/erase a source file UP
- Options: How to set compiler/assembler options
- Build: How to execute Build, makefile, etc.
- Tag Jump: How to use tag jumps for "Build errors"
- Debug: How to execute a debug
- Other Tools: How to operate non-TM tools
- Other

Install

- When I login to WindowsNT with something other than Administrator account and use TM V.3.00, I get Error No. 10. Why? (Aug. 5, 2002)
- When I install a directory name of 9 or more letters, TM does not run properly. If I install a file name of 8 letters or less, I have no problems. (Aug. 5, 2002)

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Project

- When I try to create a new project in a certain directory, I get the following error. I tried to created the project in another directory and had no problems. Why? (Aug. 5, 2002)

  "Error No.0001 Internal error.
  An instance of a document could not be created.
  -> Please contact your nearest Renesas office or its distributor."

- * When reading a project created with TM V.1.10, the following question pops up:
  If this project has been created using MR (Renesas real-time OS), this version of TM allows you to integrate MR. Do you wish to use the MR integration function on TM?
  If I answer "YES", I get a message that says the OS package can't be located. Doesn't TM automatically recognize MR7700?
  * I installed TM V.2.00 but I can't work on an SRA74 project which I originally created on TM V.1.12. I tried to create a new project, but TM V.2 only works with the M16C family and won't allow me to select any other MCUs.

- I created a project and quit TM without registering the source file. Then, when I tried to open the project again, it was refused. When I looked at the files with Explorer, I found that the project folder and the *.mtm file had been created. But, when I attempt to create another project under the same name, it is refused because a folder with that name already exists.

Is deleting the entire folder the only way to create a new project? (Aug. 5, 2002)

- When I open a project by TM and copy it with Explorer, for example, I get an error.
- After creating a project file by specifying a start-up file copy, then changing the start-up file name, I can't open the project file any more. Do I have any choice other than edit, or copy and paste, when I want to change the contents of the start-up file? (Aug. 5, 2002)
- I can't change the directory name where the project is located after I have made a new project.
- Can I copy an entire project directory (including project file, source file, header file, etc.) using another name? I want to use the project file and source, but modify the condition settings and source file, etc., then build a new project.
- I want to create a project in a directory that already exists. (Aug. 5, 2002)

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Source File

- What characters cannot be used in file paths when using TM? (Aug. 5, 2004) NEW
- Please explain how to modify the link sequence for the source file when using TM V.3. (Apr. 4, 2003)
- When I alternate between TM and Mifes (editor), the source file registration is sometimes canceled. What can I do to prevent this? (Aug. 5, 2002)
- When I am using WindowsNT, I can't register a source file from the Netware network drive to my project. (Aug. 5, 2002)
- When I add a comment to the .include line of the assembly language specifier, TM can't find the include file. Is this part of the specifications? (Aug. 5, 2002)
- Does the source file extension for TW32R have to be an upper-case ".S"? Can I also use a lower-case ".s"?
- Does the source file extension for TW32R have to be either ".c" or ".S" in order to register it in a project?
- Can I register more than one .c file when registering source files?
- Can I modify extensions?

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Options

- In the TM option browser, when I use the lmc30 ID code check option -ID and set -ID#1234, both the ID file (.id) and the Motorola S format file (.mot) become "FF". It seems that when the ID is set in hexadecimal notation, the ID becomes "FF". What is the correct method for setting the ID in hexadecimal notation? (Oct. 19, 2001)
- How can I make the assembler list-file with the M16C compiler NC30WA?
  I know I can make the file with the -as30 "-L" option when I'm compiling without TM, but the -as30 option is not specified in TM. (Aug. 5, 2002)
- Why are there certain options that I can't remove or add (-as30, etc.) when I'm setting compiler options for TM?
- Can I make my own default compiler/assembler options when creating my project?
- I can't compile in TM when I specify many compiler (or assembler) options. Is there a limit to the number of commands I can

use? The error says I must have less than 128 characters in my file name. But, when I eliminate a few options, I have no problems. (Aug. 5, 2002)

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Build

- When I build with TM, a double definition error occurs in an identical file. How can I prevent this error from occurring? (Mar. 20, 2001)

  [Example of error]
  ERROR NO.10: "NAME00" is multiple defined in .\TES.R74. others in TES.R74

- When the build operation starts, the PC accesses drive A (floppy disk) and continues to do so for more than 1 minute. Why? (Oct. 20, 1999)

- When I execute Build or Rebuild from TM, I get the following message. Of course, make.exe won't run and I can't Build or Rebuild. (Aug. 5, 2002)

  ******** Executing...
  C:\mtool\bin\MAKE.EXE: Interrupt/Exception caught (code = 0xc00000fd, addr= 0x4164e7)
  ******** Finish...

- When I use the following operations and execute a build, the "now rebuilding" message doesn't appear, even though I have changed the compiler options.
  How do I know that it is really rebuilding? (Aug. 5, 2002)

  1. Change the build option, click on OK, and close the window.
  2. Bring up the build option setting screen again, click OK without making any changes, and close the window.
  3. 3.Perform a Build.

- Can the stk30 utility included in the M16C compiler NC30WA be executed from TM? If so, how? (Aug. 5, 2002)

- When I use M16C compiler NC30WA and use TM to build, I get an error during assemble because it can't find the include file in the same directory as the assembler source file.

- Can I modify the Makefile generated by TM?

- What is the renewal timing for the *.mak file generated by TM?

- When the contents of the header file are renewed, does TM only compile the source included in that file?

- What is the method for specifying the order of the module links in the TM environment? (Sep. 20, 2001)

- When I execute a build, I get the following error message.
  When I checked the Makefile, there was no description to create object "XYZ.r30". When I try 'Scan All Dependencies' it indicates that Makefile is supposed to be updated, but nothing happened. (Aug. 5, 2002)

  ```
  make.exe: *** No rule to make target 'Output\XYZ.r30',
  needed by 'Output\sample.x30'.  Stop
  ```

- I got a compile error during a build because the compiler can't find the 'source file' and 'include file' which are located in different directories.

- I have a project file or source file in the networked file server, but I can't perform the build.

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Tag Jump

- When the compile result is properly output on the output window and I double click on an error message for a tag-jump, TM opens the editor window, but does not let me go to the corresponding source line. What is wrong? (I am using Mifes V3.0.)

- When an error occurs in the results of my BUILD, I double-click on the line displaying the error in the output window, but the editor doesn't display the corresponding line.

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Debug

- After I debug my project with TM, I save the project and quit the program. The next time I open the project and load it to your emulator, it tells me to build again, even though I haven't made any modifications since I saved it. Why? (Aug. 5, 2002)

- I want to specify the parameters for executing the debugger. (Aug. 5, 2002)

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Other Tools

- When I want to use other tools with TM V.2.00 and I modify the current directory, I have no problems immediately after the modification, but, when I re-open the project, the current directory information has not been saved. To be specific, I want to change the current directory to "Working Directory", but whenever I re-open the project, it always goes back to "Directory that contains the execution file". Why? (Aug. 5, 2002)

- When I execute other tools by going from [Action] --> [Other] in the TM menu, I get the following message. Is this a problem? This message does not come up when I execute LMC30 in DOS window.

  "Code Page 932 is not supported by this system."

- Can I use "%F" with Other Tools when specifying a parameter, such as a file name?

- When I execute other tools by going from [Action] --> [Other] in the TM menu, I get the following message: Out of parameter limits.

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Other

- How do I create ROM programming data with TM? (June 21, 2004)

- Can I use TM V.2.01 and NC308WA V.3.00 together? (Nov. 6, 2000)

- When I make the TM window smaller than the Output window, the Tree and View windows are both hidden. In this situation, how can I make the Tree, View, and Output windows smaller? (Apr. 5, 2000)

- It seems that the latest TM version takes much longer to load or compile a project. Is this something that can't be avoided due to additional functions in upgraded versions? (Aug. 5, 2002)

- I can't quit TM V.1.00. I've tried pressing the X mark at the top-right of the screen or using ALT + F4, but they don't work. The only way to quit TM is to reset my PC or press Ctrl + Alt + Delete. (Aug. 5, 2002)

- I want to change the TAB and FONT settings in the view window. If it is possible, I want to change them for each file type. Also, can I bring the editor cursor position to the position I have already set in the view window as soon as I execute the editor from TM? (Aug. 5, 2002)

- Does the File Tree actually create the Target, Source, and Header folders that are displayed in the tree?

- Can I make my source directory with the File Tree and manage my files through it?

- Can I create a new directory in the working directory and keep files (source file, header file) there? Also, will File Tree properly display them when I do this?

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SQMlint MISRA C Rule Checker

See Tool News for this product

Last Updated: June 21, 2004

- When I describe enumerators for the left and right operands of the conditional operator ":" the return value is input as an enumerated variable, I get a report message regardless of using the same type. Why does SQMlint output this message? (June 21, 2004) NEW
- When I describe an enum type parameter for the prototype declaration and use an enumerator-type argument for the function call, I get the report messages regardless of using the same type. Why does SQMlint output these messages? (June 7, 2004)
- I want to output the results checked by SQMlint into report files while compiling several C language source files. How can I output the results of each source file in a separate report file? (Apr. 5, 2004)
- When executing an automatic inspection, can I select only specific rules from the list of supported rules? (Oct. 20, 2003)

FAQ Index

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M3T-NC30WA (including NC30) C Compiler Package

See Tool News for this product

Last Updated: May 8, 2003

Contents

- Options
- Memory Allocations
- Pre-process Commands
- Function & Variable Declarations
- Utilities (stk30, utl30, etc.) *Updated*
- Optimization
- Libraries
- Start-Up
- Warnings & Errors
- Include File
- Output Codes
- Install
- Comments
- Registers
- #pragma
- Output Files
- Pseudo Instructions
- Operating Environment

Options

- In what kind situation is the -LOC option used for ln308 and ln30? (Jan. 7, 2003)
- I am aware of -M62E option (outputs an object code for M16C/62 Group expansion area) as a boot-up option for NC30, AS30, and LN30, but would like to know what options there are when not using the expansion area. (Sep. 20, 2000)
- Can I output the same warning contents as "-Wall" without actually specifying "-Wall"? (Aug. 25, 2000)
- The "-Wall" option outputs all detectable warnings. Exactly what warning options do these detectable warnings apply to? (Aug. 25, 2000)
- How can I find out the version numbers of the programs in the NC30WA package? (Aug. 25, 2000)
- The Manual indicates that the "-Wall option" will display all detectable warnings. Does this also output the contents of other warning options, such as "-WUV", "-WNC", and "-WLTS"? (Aug. 7, 2000)
- Which has higher priority, the optimization option or the de-optimization option? (Aug. 7, 2000)
- When I specify several optimization options, in what priority are the options processed? (Aug. 7, 2000)
- Can I define the optimization contents in detail with optimization option "-ONSBD"? (Aug. 7, 2000)
- When optimization option "-ONSBD" is specified, what kind of de-optimization happens? (Aug. 7, 2000)
- Do the directory names specified by compile driver "option -I" have a certain priority? (Aug. 7, 2000)
- When I specify command option -fextend_to_int and compile my file, the calculation result is sometimes different from what I expected. Why is that? (Jul. 21, 2000)

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Memory Allocations

- When making my program in C language, I want to place the global variable according to the sequence described in the

definition. How can I do this? (Dec. 20, 2000)

- What kind of declaration should I make in order to assign the array body in a far area and assign the array's reference pointer in a near area? (Sep. 20, 2000)

- How can I make each function that I describe with C language into an absolute address (fixed address)? (Aug. 7, 2000)

- I want to place CONST-declared data at the place that I assign in the ROM. (Jul. 21, 2000)

- How do I specify the following absolute address when using the above the "#pragma ADDRESS" declaration? (Jul. 21, 2000)
  [Absolute address declaration Example]

```
#define AAA    (*(volatile unsigned char *)0x000406)
```

- How can I locate library functions in a ROM address when linking. Also, is there a section for library functions that enables me to make section assignments during a link? (Mar. 21, 2000)

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Pre-process Commands

- I defined a numerical value for the character string by the "#define" preprocess command. However, the operation of this expression using this string did not result in the expected value. Why not?
  In the following example, operation 'cul' does not result in the expected value, 0x04AAAA. (Aug. 25, 2000)

  [Program Example]

```
  #define      V1       0x040000
  #define      V2       0x0AAAA + V1

  cul = (WORD *)v2
```

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Function & Variable Declarations

- Can I use KANJI(Chinese) characters in C source programs? (Nov. 19, 2001)

- When executing the following program, long-type variable "l" is supposed to hold "-1". However, the results become 0xF(15). How can I make the results be "-1"? (2000.12.20)

```
void main( void )
{
    struct
    {
        short r : 10 ;
        short i : 4 ;
        short s : 2 ;
    } buf ;
    long l ;


    buf.i = -1 ;
    l = (long)buf.i ;
}
```

- What kind of declaration should I make in order to assign the array body in a far area and assign the array's reference pointer in a near area? (Sep. 20, 2000)

- When I evaluated an expression using the function specified in an external file, the expression was evaluated by a type other than the type which the function specifies. Why does this happen? (Aug. 25, 2000)

- Why doesn't the compiler generate an error when I reference an external function that has not been declared as "extern"? (Aug. 25, 2000)

- In a C language program, if I declare two variables with the same name and same type in the same file, will an error be generated? (Aug. 25, 2000)

- I declared the function which specified "#pragma PARAMETER" as prototype, but the function name that I get after compiling starts with "_". Why doesn't it start with "$"? (Aug. 25, 2000)

- Does the prototype declaration determine how the function argument is passed? (Aug. 25, 2000)

- Does the passing method of function arguments affect the program's interchangeability? (Aug. 25, 2000)

- Is there any difference in the speed or size of the program when a function argument is passed by a register compared to a stack? (Aug. 25, 2000)

- What are the required conditions for a function argument to be passed by a register? (Aug. 25, 2000)

- When I do a Build, the following error is displayed.
  Normally, when there is no reference function, a function with "_", as in "_func1", is displayed. Why is this one displayed with "$"? The func1 function exists in a different file. (Aug. 25, 2000)

  samp.c 190 Error (ln30):.\samp.r30:'$func1' value is undefined

- When I declared "const" character string data as the structure, the compiler generated not only constant data but also assembler code that reserve a ROM area. What is this ROM area for? (Aug. 7, 2000)

- I want to place CONST-declared data at the place that I assign in the ROM. (Jul. 21, 2000)

- I want to assign all registers (R0, R1, R2, R3, A0, and A1) as register variables. Is it possible to do this with the NC30 compiler? (Jul. 21, 2000)

- I want to use register variables with the NC30 compiler. How can I do that? (Jul. 21, 2000)

- When I specify an absolute address with "#pragma ADDRESS", do I have to use the "volatile" declaration, too? (Jul. 21, 2000)

- How do I specify the following absolute address when using the above the "#pragma ADDRESS" declaration? (Jul. 21, 2000)
  [Absolute address declaration Example]

```
#define AAA    (*(volatile unsigned char *)0x000406)
```

- When I am linking my program, the linker generates this error: 'function-name' value is undefined. But the function itself actually exists. What's wrong?

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Utilities (stk30, utl30, etc.)

- The stack overflowed even though I reserved the correct stack size as displayed in the Stk Viewer. Is the stack size shown in the Stk Viewer not enough? (May 8, 2003)*New!*

- I am using Integrated Development Environment TM V.3.01, and, after making additions to my program, I got the following message: "No. 6. Stk Viewer: Out of memory". What is the work-around for this? (Sep. 5, 2001)

- How can I specify a static function for the stack consumption calculation function with stk30? (Aug. 25, 2000)
- When I generated sbdata.h with the SBDATA declaration utility (utlxx), some of the variables become comments. Why is this? (Aug. 7, 2000)

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Optimization

- Which has higher priority, the optimization option or the de-optimization option? (Aug. 7, 2000)
- When I specify several optimization options, in what priority are the options processed? (Aug. 7, 2000)
- Can I define the optimization contents in detail with optimization option "-ONSBD"? (Aug. 7, 2000)
- When optimization option "-ONSBD" is specified, what kind of de-optimization happens? (Aug. 7, 2000)
- Can the NC30 compiler assign a register for local variables when the optimization option is specified? (Jul. 21, 2000)
- In the program example, variable b is over written at the line stated by [l=ReceiveByte(4);] in the compiled assembly code. Why does this happen? (Mar. 21, 2000)

Example program	Assembly code

`void IntS4R(void)`
`{`
`  long l;`
`  char c,b;`
`  b=ReceiveByte(4);`
`  l=ReceiveByte(4);`
`}`
	`void IntS4R(void)`
	`{`
	`  long l;`
	`  char c,b;`
	`  b=ReceiveByte(4);`
	`  MOV.B  #4,R1L`
	`  JSR.A  $Receive`
	`  MOV.B  R0L,-4H[FB]`
	`  l=ReceiveByte(4);`
	`  MOV.B  #4,R1L`
	`  JSR.A  $Receive`
	`  MOV.W  R0,-4H[FB]`
	`  MOV.W  R2,-2H[FB]`
	`  EXITD`
	`}`

- My port access statement is not properly generated as a binary code when I use the optimization option. Why not?
- Since sequential bit accesses are grouped into one operation, an interrupt occurring during this operation sometimes causes my program to mis-operate. What can I do to avoid this?

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Libraries

- When using NCxxWA, how can I prevent my application from linking unnecessary functions, such as MALLOC() and MEMCPY()? (Aug. 7, 2000)
- When the linker links library files, does it perform any cross-referencing among libraries? (Jul. 21, 2000)
- How can I locate library functions in a ROM address when linking. Also, is there a section for library functions that enables me to make section assignments during a link? (Mar. 21, 2000)

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Start-Up

- The FB Register is defined in ncrt0.a30, what is it used for? Can I modify its contents? (Dec. 20, 2000)
  [FB Register defined place]

```
        ldc     #0h,fb  ; for debuger
```

- I am developing a program for M16C/21. I created a new project with TM. The ncrt0.a30 file that was generated is described as "C COMPILER for M16C/60". Can I use this file as is? (Aug. 7, 2000)

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Warnings & Errors

- The linker generates the following error message: "16-bits unsigned value is out of range 0 -- 65535. address = 'xxxx'"
  However, when I reduce the RAM size, this warning is not generated. What could be the cause of the problem? (Nov. 19, 2001)

- How should I describe the C-source statements to avoid getting the ln30 warning error "JMP.S instruction exist at end of bank (address xxxxx)"? (Oct. 20, 2000)

- When I execute NC30 in the MS-DOS prompt, the following message comes up and I cannot perform the compile. How can I work around this? (Oct. 5, 2000)

  "This program cannot be run in DOS mode."

- Why doesn't the compiler generate an error when I reference an external function that has not been declared as "extern"? (Aug. 25, 2000)

- In a C language program, if I declare two variables with the same name and same type in the same file, will an error be generated? (Aug. 25, 2000)

- I upgraded the NC30WA with a version later than V.3.20 Release 1, and then I started getting a warning. I am concerned that there may be something wrong in my program. (Aug. 7, 2000)

- When I compile/assemble a C-source file which includes a structured assembler description enclosed with #pragma ASM and #pragma ENDASM using the TM, the TM generates a symbol miss error. How can I workaround this?
  However, when I invoke the as30 after making the intermediate file with nc30wa "option -S", I successfully get the r30 file with no error. (Aug. 7, 2000)

  [Example]

  - C language source file (samp.c):

```
void func(void){
#pragma ASM
        if R0 == 02h
                A0 = 1
        endif
#pragma ENDASM
}
```

  - Error Message:

```
 samp.c 25 Error (asp30): Symbol is missing
 samp.c 26 Error (asp30): Symbol is missing
 samp.c 27 Error (asp30): Symbol is missing
```

- When I am linking my program, the linker generates this error: 'function-name' value is undefined. But the function itself actually exists. What's wrong?

- When I execute the NC30 on Windows 95 'can't analyze error' is displayed and NC30 stops compiling my program. What's wrong?

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Include File

- Do the directory names specified by compile driver "option -I" have a certain priority? (Aug. 7, 2000)

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Output Codes

- I made the following program(1) in C.
  Upon examining the generated codes, it seems that variable x (the operand) is compared with 5 before the variable increment. Is the following description(2) necessary in order to have variable x compared with 5 after the variable increment? (Jul. 5, 2001)
  (1)

```
    if (x++ == 5){
         aaasub();
    }
```

  (2)

```
    x++;
    if (x ==5){
        aaasub();
    }
```

- When executing the following program, long-type variable "l" is supposed to hold "-1". However, the results become 0xF(15). How can I make the results be "-1"? (Dec. 20, 2000)

```
void main( void )
{
    struct
    {
        short r : 10 ;
        short i : 4 ;
        short s : 2 ;
    } buf ;
    long l ;


    buf.i = -1 ;
    l = (long)buf.i ;
}
```

- When I describe a multiply expression in C language, the expression does not result in the expected value. Why not? For example, as shown below, the expected value for y0 is 0x0300, but the actual result is 0x055. (Dec. 20, 2000)
  [Program example]

```
#define  CONST_A  0x0400
#define  CONST_B  0x0c0

void main( void )
{
unsigned char   x0;
unsigned int    y0;

    x0 = 0x090;
    y0 = ( x0 * CONST_A ) / CONST_B;
}
```

- When I declare the function (void_far) type, a 4-byte area is reserved for this. Why isn't a 3-byte area (0 - FFFFFFH) reserved? (Aug. 25, 2000)

- I defined a numerical value for the character string by the "#define" preprocess command. However, the operation of this expression using this string did not result in the expected value. Why not?
  In the following example, operation 'cul' does not result in the expected value, 0x04AAAA. (Aug. 25, 2000) [Program Example]

```
   #define      V1       0x040000
   #define      V2       0x0AAAA + V1

   cul = (WORD *)v2
```

- When NC30 compiles a signed variable left-shift statement, it uses a logical shift instruction instead of an arithmetic shift instruction. Why is that? (Jul. 21, 2000)

- When I define an interrupt function with "#pragma INTERRUPT/B", the compiler does not generate any "fclrB" instruction for register switching. Why is that? (Jul. 21, 2000)

- How are the following operations are handled in NC30? (Mar. 21, 2000)
  1. Rounding direction of negative integer division "/" result.
  2. Sign of negative integer remainder "%" result.
  3. Does negative integer right-shift ">>" result make arithmetic shift (sign bit stuffing in MSB) or logical shift (0 stuffed in MSB)?

- In the example program, why does the right side of the equation [aaa = (signed long)(BBB << CCC);] become 0x0000f000? When I use VISUAL C++, it becomes 0x0ffff000. (Mar. 21, 2000)

Example program	Compiled assembly code

`#define BBB     (unsigned short)0xffff`
`#define CCC     (unsigned char)12`
 	
`signed long aaa;`
 	
`test( void )`
`{`
`    aaa = (signed long)( BBB << CCC );`
`}`
	`_test:`
	`    mov.w       #0f000H,_aaa`
	`    mov.w       #00000H,_aaa+2`
	`    rts`

- In the program example, variable b is over written at the line stated by [l=ReceiveByte(4);] in the compiled assembly code. Why does this happen? (Mar. 21, 2000)

Example program	Assembly code

```
void IntS4R(void)
{
      long l;
      char c,b;
      b=ReceiveByte(4);
      l=ReceiveByte(4);
}
```

```
void IntS4R(void)
{
      long l;
      char c,b;
      b=ReceiveByte(4);
          MOV.B      #4,R1L
          JSR.A      $Receive
          MOV.B      R0L,-4H[FB]
      l=ReceiveByte(4);
          MOV.B      #4,R1L
          JSR.A      $Receive
          MOV.W      R0,-4H[FB]
          MOV.W      R2,-2H[FB]
          EXITD
}
```

- My port access statement is not properly generated as a binary code when I use the optimization option. Why not?
- Since sequential bit accesses are grouped into one operation, an interrupt occurring during this operation sometimes causes my program to mis-operate. What can I do to avoid this?
- When compiling with the NC30 V.3.00 (non-optimized), the code size is sometimes larger than in the NC30 V.2.00. Why?

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Install

- I bought the NC30WA package. I was able to install NC30 properly with the included license ID, but I could not install AS30 with the same ID. Do I need to obtain a separate license ID for AS30, too? (Jul. 21, 2000)

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Comments

- When I put "/*" in a comment starting with "//", the compiler generates an error. Can't I use this character combination? (Jul. 21, 2000)
  [Example program]

```
main()
{
        //  /* abc
}
```

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Registers

- Which registers are stored in the stack when calling a function? (Dec. 20, 2000)
- I want to assign all registers (R0, R1, R2, R3, A0, and A1) as register variables. Is it possible to do this with the NC30 compiler? (Jul. 21, 2000)
- Can the NC30 compiler assign a register for local variables when the optimization option is specified? (Jul. 21, 2000)
- I want to use register variables with the NC30 compiler. How can I do that? (Jul. 21, 2000)

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#pragma

- When I specify an absolute address with "#pragma ADDRESS", do I have to use the "volatile" declaration, too? (Jul. 21, 2000)

- How do I specify the following absolute address when using the above the "#pragma ADDRESS" declaration? (Jul. 21, 2000)
  [Absolute address declaration Example]

```
#define AAA    (*(volatile unsigned char *)0x000406)
```

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Output Files

- The NC30WA generates the "S8" record at the last row in the Motorola S-format file. What does this mean? (Jul. 21, 2000)

- The NC30WA compiler generates the "S0" record at the top row in the Motorola S-format file. But a PROM writer does not seem to use this record. What is this record for? (Jul. 21, 2000)

- When compiling with C compiler, how can I generate an assembler list file too? (Jul. 21, 2000)

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Pseudo Instructions

- How should I describe the C-source statements to avoid getting the ln30 warning error "JMP.S instruction exist at end of bank (address xxxxx)"? (Oct. 20, 2000)

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Operating Environment

- I get the following error when I compile my program.
  nc30:No such file or directory
  I have set the environment variables as follows. Is there any other possible cause? (Dec. 20, 2000)

```
SET BIN30=C:\MTOOL\BIN
SET LIB30=C:\MTOOL\LIB30
SET INC30=C:\MTOOL\INC30
SET TMP30=C:\MTOOL\TMP
```

- When I execute NC30 in the MS-DOS prompt, the following message comes up and I cannot perform the compile. How can I work around this? (Oct. 5, 2000)

  "This program cannot be run in DOS mode."

- How can I find out the version numbers of the programs in the NC30WA package? (Aug. 25, 2000)

- It takes so long to compile my program in Windows 3.1, DOS version (IBE). Is there any way to speed up the process?

- When I execute the NC30 on Windows 95 'can't analyze error' is displayed and NC30 stops compiling my program. What's wrong?

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M3T-MR30 (M3T-MR30K, M3T-MR30S) Real-time OS

See Tool News for this product

Last Updated: August 20, 2002

Contents

- Agreement
- Cause of Abnormal Program Operation
- Warnings for Compiling and Linking *Updated*
- Memorypool Function
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- Cyclic Handler
- Interrupt
- System Call Return Parameter
- Makefile Preparation Method
- RAM Contents used by System Call
- Register Bank
- Combination with TM *Updated*
- Differences between MR30K and MR30S

Agreement

- We plan to use a third party for software development. Who should purchase the production license?
- How many kinds and quantities of products can be covered by one production license?
- Is it possible to purchase the MR30S production license only, without purchasing the development kit?

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Cause of Abnormal Program Operation

- My program stopped operating properly after I changed the message size in the mailbox function. Why? (Dec. 20, 2000)
- Assume that I am developing an application program with MR30. When I change the output destination directory during the compile or assemble process (specified options: -dir for compiler, -0 for assembler), MR30 will no longer link the real-time OS kernel module. (Dec. 20, 2000)
- My program is malfunctioning... (Aug. 5, 2002)
- After upgrading my software, the programs I had been using no longer work. What's wrong?

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Warnings for Compiling and Linking

- I am creating a program with M3T-MR30 using TM, but I get a "value is undefined" error for the symbols for system call, etc. when I perform the build. What is the problem and how can I solve it? (Aug. 20, 2002)*New!*
- During a compile, the "far pointer (implicitly) casted by near pointer" warning comes up concerning the system call in the mailbox functions. Why do I get this warning?
- During a link, the "value is undefined" warning comes up for symbols "__TCB_tmrq_for" and "__TCB_tmrq_back". Why do I get this warning?

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Memorypool Function

- Can I use C language standard function "malloc" to allocate memory (variable-size) dynamically with the MR30?
- Can system call of the variable-size memorypool function be issued from a handler (interrupt handler, cyclic handler, alarm handler)?
- In the variable-size memorypool function, there are 4 types of memory block sizes available based on the value (max_memsize) specified in the configuration file. Please let us know the equation for determining these 4 block sizes.

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Task Description Method

- According to the manual, it's not necessary to describe the ext_tsk system call for each task. Should I describe this system calls for tasks if I want to reuse these source codes in other applications?

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System Clock Timer

- What is the best system clock frequency?

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Cyclic Handler

- Will the cyclic handler begin processing in the interrupt disable state? Or does it start processing in the interrupt enable state?

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Interrupt

- When using the MR30 OS-independent interrupt and enabling the multiple interrupts option, I enable it with "#pragma INTERRUPT /E". Is there a similar option for enabling multiple interrupts when using in the OS-dependent interrupt? I want to use the C language to write the source file. (Mar. 20, 2001)

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System Call Return Parameter

- What is the return value of a system call (can_wup, wai_flg, twai_flg, pol_flg, rcv_msg, trcv_msg, prcv_msg, pget_blf, pget_blk) which has a return parameter and does not return an E_OK?

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Makefile Preparation Method

- My program stopped operating properly after I changed the message size in the mailbox function. Why? (Dec. 20, 2000)
- Assume that I am developing an application program with MR30. When I change the output destination directory during the compile or assemble process (specified options: -dir for compiler, -0 for assembler), MR30 will no longer link the real-time OS kernel module. (Dec. 20, 2000)
- I would like to make my own makefile for the system I use with the MR30 (in other words, not use the makefile created by

the configurator). Is there anything I should be aware before doing this?

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RAM Contents used by System Call

- What data is contained in 'extendedinformation(exinf)' of the status reference system call (ref_xxx)?
- Is the initial value of the eventflag bit pattern undefined?

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Register Bank

- Is there any problem with switching the register bank in a task? (Oct. 20, 1999)
- Which register bank, register bank 0 or 1, is used for the task context? (Oct. 20, 1999)
- I want to use the registers of bank 1 in the OS-dependent interrupt handler. How should I describe it?
- I want to use registers of bank 1 in the OS-independent interrupt handler. How can I specify it in the configuration file?
- Does MR30 perform register bank switching in the kernel? (Oct. 20, 1999)

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Combination with TM

- I am creating a program with M3T-MR30 using TM, but I get a "value is undefined" error for the symbols for system call, etc. when I perform the build. What is the problem and how can I solve it? (Aug. 20, 2002)*New!*
- My program stopped operating properly after I changed the message size in the mailbox function. Why? (Dec. 20, 2000)
- Assume that I am developing an application program with MR30. When I change the output destination directory during the compile or assemble process (specified options: -dir for compiler, -0 for assembler), MR30 will no longer link the real-time OS kernel module.(Dec. 20, 2000)

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Differences between MR30K and MR30S

- Renesas provides two versions of MR30: MR30K and MR30S. What are the differences between them? (Apr. 5, 2001)

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M3T-PD30SIM Simulator Debugger (Originally PDB30SIM)

See Tool News for this product

Last Updated: June 5, 2003

- I get the following error when I download a program with M3T-PD308SIM or M3T-PD30SIM: (June 5, 2003)*New!*

  "ERROR 6200: SYMBOL file is illegal."

- I want to setup interval data sampling using the OnTimer function the CB30SIM. Please tell me the LSB for the interval to be set in _win_timer_set. The manual indicates milliseconds (ms). However, based on my tests so far, when I set 1000ms or more, I have no problem, but when I set 10ms as the interval, the actual interval is around 50ms. (Feb. 20, 2002)

- To execute a source compile on the M3T-NC30WA, I treat the enumerator by the generated code modifying option "-fCE" as an unsigned char type, rather than int type. However, when I reference the enumerator type variable with the M3T-PD30SIM (display by moving the mouse curser to the variable), it displays the form in 16 bits instead. Why? (Dec. 20, 2001)

- How should I set Timer A0 for MR30 when executing a program, which embeds MR30, on PD30SIM? (Oct. 5, 2001)

- How do I reference local bit symbols with PD30SIM? (Sep. 5, 2001)

- Can PD30SIM perform the CRC code generation which M16C/62 has in its hardware function? In other words, can I use the CRC data register and CRC input register for CRC generation? (Apr. 5, 2000)

- I get an error and I can not use the custom commands when I:

  1. Use the OPEN button in the script window to open a *.scr file which is not in the same directory as PDxx.EXE,
  2. then execute a custom command, in the script window, which exists in the same directory as PDxx.EXE does.

  I realize I can execute custom commands by placing the *.scr file in the same directory as the PDxx.EXE, but in this case having to put both in the same directory is not convenient. (Nov. 19, 1999)

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M3T-PD30F Emulator Debugger for M16C/60, M16C/Tiny Series

See Tool News for this product

Last Updated: April 5, 2004

- When I am debugging my program, sometimes I can't open Time Measurement Window. How can I measure the interval time? (Apr. 5, 2004) NEW
- I can't start up my debugger with the USB interface even though I have used it successfully before. What's the problem? (Feb. 5, 2004)
- I can't install the USB Driver successfully. What could be the problem? (Feb. 5, 2004)

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M3T-PD30 Emulator Debugger (Originally PDB30)

See Tool News for this product

Last Updated: April 5, 2004

Contents

- Questions before You Purchase
- Install and Setup
- C Language Debug Function
- Real-time RAM Monitor Function
- Other Debug Functions UP

Questions before You Purchase

- How can I find out the type and license ID of the emulator debuggers included in the CD-ROM that comes bundled with Emulators PC4701U/PC4701M? (July 22, 2003)
- According to the document Release note, PD30 can not download the object module file created by the IAR Compiler including the "XLINK V.4.51F". I want to know if PD30 can download the object module file created by the IAR C compiler including the "XLINK V.4.51G" (Mar. 21, 2000)
- Can I use PD30 or PDB30 with the 38000 Series debugger?
- Can I use LAN interface?
- Can PD30 be used with parallel interface?
- Is there an English version of PD30 available?
- Is it necessary to purchase a PD30 for each PC we will use it on, or is it ok to make copies?

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Install and Setup

- I can't install the USB Driver successfully. What could be the problem? (Feb. 5, 2004)
- I just upgraded my PC operating system to Windows 2000 and the emulator debugger I am using won't work anymore. I am using the Parallel Interface Board (PCA4202G02) to connect the PC and emulator. What's the problem? (Dec. 20, 2002)
- Can PCA4202G02, the dedicated parallel-interface board for emulator systems PC4701 and PC4816B, be used with Windows 2000/NT 4.0? (Nov. 5, 2001)
- Can I use the default setting of the PD30 work area as it is, when developing a program for a 256K ROM and 20K RAM MCU? (Jan. 22, 2001)
- Can I use the default MCU file for PD30 when developing a program for a 256K ROM and 20K RAM MCU? (Jan. 22, 2001)
- Due to changing the target MCU series, I had to change the PC4701 Emulation pod as well. Every time I apply power to the PC4701, the program generates a request for firmware download. (Nov. 6, 2000)
- Is there anything I need to know about using PD30 with a LAN connection? (Sep. 20, 2000)

- I plan on adding a LAN card to my notebook PC for connection with the Renesas emulator. Does Renesas recommend certain LAN cards or have operation tests for specific LAN cards? (Sep. 20, 2000)
- Is a hub necessary even when I use the emulator in a stand-alone environment? I want to connect my PC and PC4701HS directly. (Sep. 20, 2000)
- Can I use a LAN connection with my notebook PC? If so, is there any special setup I need to perform? (Sep. 20, 2000)
- When I start up PD30, it asks for the user to select the MCU file, but I can't locate the target MCU file. What should I do? (Aug. 25, 2000)
- 1. When using M3T-PDxx (M3T-PD308, M3T-PD30, M3T-PD79, M3T-PD77, M3T-PD38) with PC4701U/PC4701M, the emulator serial number must be input during the M3T-PDxx installation. But what happens when I install using a PC4701U/PC4701M with a different serial number?
  2. Can I use the M3T-PDxx bundled in the "Debug Tools" (formerly called "PDxx service pack") for the PC4701U/PC4701M with any other PC4701 emulator besides PC4701U/PC4701M? (July 22, 2003)
- What are the numbers that appear at the end of the MCU file attached to PD30 V.4.00?
- Is there anything I need to know about modifying the memory map data configuration with the MAP command?
- Are there any special settings required for Windows 95 when I use the LAN connection function?

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C Language Debug Function

- To execute a source compile on the M3T-NC30WA, I treat the enumerator by the generated code modifying option "-fCE" as an unsigned char type, rather than int type. However, when I reference the enumerator type variable with the M3T-PD30 (display by moving the mouse curser to the variable), it displays the form in 16 bits instead. Why? (Dec. 20, 2001)
- Can I perform source debugging with macros defined by pre-processed command #define? (Jun. 5, 2001)
- When I debug a program which uses M16C/62 memory expansion mode 2, and display the pointer variables that point the value of the expanded area in C watch window, the value is not correct. (Nov. 19, 1999)
- Can I display and reference the float variable using decimal numbers?
- How can I obtain the address for the static variable in PD30?

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Real-time RAM Monitor Function

- Does the PDxx operation affect the emulator MCU execution speed or conditions? I would like to know how the PC4701 reads out data from the emulation MCU in real-time. (Jul. 5, 2000)
- I am using the PDxx emulator debugger on my notebook PC. And I use the serial interface for the emulator connection. Sometimes, while I am using the RAM monitor window, my target program hangs up. Does the PDxx debugger have a compatibility problem with my PC? Do I have to have a special setting for my OS version? (Jul. 5, 2000)
- I want to refer to the data at address 0x46x and 0x500 from the RAM monitor window, but because the real-time RAM monitor function specifies that the memory must continually be 1K bytes, I can not refer to both at the same time. Is there any way to separate the RAM monitor area into sections? (Nov. 19, 1999)

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Other Debug Functions

- When I am debugging my program, sometimes I can't open Time Measurement Window. How can I measure the interval time? (Apr. 5, 2004) NEW

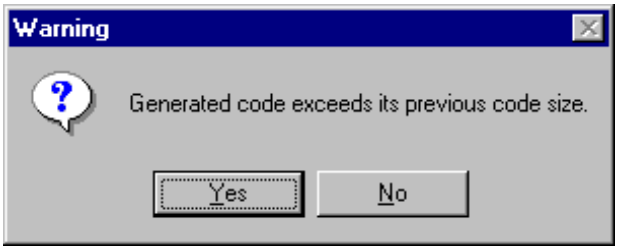
- I can't start up my debugger with the USB interface even though I have used it successfully before. What's the problem? (Feb. 5, 2004)

- If the target system is reset during the STEP execution, can the debugger continue to debug normally? (Feb. 20, 2003)

- I want to setup interval data sampling using the OnTimer function the CB30. Please tell me the LSB for the interval to be set in _win_timer_set. The manual indicates milliseconds (ms). However, based on my tests so far, when I set 1000ms or more, I have no problem, but when I set 10ms as the interval, the actual interval is around 50ms. (Feb. 20, 2002)

- How do I reference local bit symbols with PD30? (Sep. 5, 2001)

- I get this warning when I modify the src code as follows: MOV.W #0010H,A0 -> MOV.W #0030H,A0
  Is this perhaps because the conversion to an instruction is not optimized in this case? (Jun. 20, 2001)



- I set the hardware breakpoint in the PD30, but when I execute the program with the breakpoint, the program stops after passing the set breakpoint. What is the problem? (Feb. 5, 2001)

- In PD30, is there any way to know that the program execution passed the trace point without setting a break point? (Aug. 25, 2000)

- When I make a button in the GUI input window, save it, then load it again, I get an error (ERROR 10601) and cannot read it. How can I make it work?(Aug. 25, 2000)

- I know I can specify the PD30 protect break for a consecutive 256K-byte area, but can I specify the break for more than one area at the same time? (Aug. 7, 2000)

  [Example]

  00000h to 3FFFFh area
  C0000h to FFFFFh area

- Have the contents of the MESC TOOL NEWS issued on July 16, 1998 "Precaution on Using Time Measurement Windows in PC4701HS/PC4700H Emulators" been updated and fixed concerning PD30 V.4.00? If the contents have not been fixed yet, do I still need to use phicount_e.exe? (Mar. 21, 2000)

- I get an error and I can not use the custom commands when I:

  1. Use the OPEN button in the script window to open a *.scr file which is not in the same directory as PDxx.EXE,
  2. then execute a custom command, in the script window, which exists in the same directory as PDxx.EXE does.

  I realize I can execute custom commands by placing the *.scr file in the same directory as the PDxx.EXE, but in this case having to put both in the same directory is not convenient. (Nov. 19, 1999)

- When I open the existing log file, will the new data be added to the end of the existing data, will it overwrite the existing data?

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PDSDK COM Kit Debugger Customization kit

See Tool News for this product

Last Updated: November 19, 2002

- How can I obtain hardware waveform data (send/receive waveforms of communication, etc.) using the PDSDK COM Kit? (Nov. 19, 2002)*New!*

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M306xxT(2)-CPE Compact Emulator

See Tool News for this product

Last Updated: October 20, 2003

- After installing the emulator debugger and connecting the emulator through the USB port, the new device is still not recognized by the system.(Oct. 20, 2003)*New!*
- Can I debug an M16C/61 Group MCU (M30612) with M30620T-CPE, the M16C/62A of M16C/62 Group compact emulator? (Jul. 23, 2001)

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PC4701* Emulator for M16C, 7700, 740 Families

* The generic name with PC4701U/PC4701M/PC4701HS/PC4701L/PC4700H/PC4700L

See Tool News for this product

Last Updated: October 20, 2003

Contents

- Purchases
- Interface *Updated*
- Operational Errors
- Debug Function
- Others

Purchases

- How can I find out the type and license ID of the emulator debuggers included in the CD-ROM that comes bundled with Emulators PC4701U/PC4701M? (Jul. 22, 2003)
- Can I use the emulator PC4701U, PC4701M and PC4701HS in the People's Republic of China? Do I have to buy any special accessory components? (Oct. 5, 2001)
- Teach me the product line of PC4701 emulator. (Mar. 20, 2001)

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Interface

- After installing the emulator debugger and connecting the emulator through the USB port, the new device is still not recognized by the system.(Oct. 20, 2003)*New!*
- I installed the dedicated device driver (Musbdrv.sys) for the Renesas emulator, but when I look at the device manager in the system property, I don't get the USB icon, instead I get a "? (question mark)" icon. (oct. 5, 2001)
- The wizard for adding a USB driver starts up when connecting a USB cable of PC4701U to a PC. Why isn't the driver installed automatically? (Oct. 5, 2001)
- Can I connect my stand-alone PC with either Emulator PC4701U or PC4701HS using a LAN connection? (Apr. 20, 2001)
- What are Renesas's plans for emulator to PC interface? (Sep. 20, 2000)
- Although I want to connect emulator PC4701HS (or PC4700H) to the host through LAN, the host IP address is set to auto-config so that the host does not recognize the emulator. What should I do? Why? (Aug. 7, 2000)
- I want to connect emulator PC4701HS (or PC4700H) to the host through LAN. Can I give the emulator an IP address automatically? (Aug. 7, 2000)
- How to connect the emulator PC4701U (or PC4701M) and printer port of PC?

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Operational Errors

- I am using Emulation Pod M306xxTx-RPD-E with the 100LCC-80QSB pin-converter board, but the POWER LED on the STATUS OF TARGET side of Emulator PC4701 doesn't turn on.(Jan. 22, 2001)
- Please let me know the serial numbers of the emulator PC4701HS/PC4700H products to be repaired, as indicated in the MESC TOOL NEWS "Precaution in Using PC4701/PC4700/PC4901/PC4900 Emulators with LAN Interface" issued on July 16, 1998. (Jul. 5, 2000)
- I am using the emulator PC4701 with the emulation pod M38000TL2-FPD. When I startup the emulator system, the PC4701 LED display immediately after startup is not as indicated in the instructions. In normal operations, the target status RESET LED should go off, but it remains on. I assumed that this indicates an error, but the emulator debugger still operated normally. Why? (Mar. 3, 2000)
- The following message is displayed when I turn on the emulator debugger: "Status: unable to reset" or "Cannot communicate with the debugging monitor. Please execute RESET command.". Why? (June 5, 2003)
- My emulator PC4701 will not turn on. What should I do?
- I can't successfully download the firmware. What am I doing wrong?
- The following message is displayed when I turn on the emulator: "Communication error". (Mar. 21, 2001)
- Why do I get an error when I execute the self-check on the emulator PC4701?

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Debug Function

- In Emulator PC4701, what break conditions must be detected for the break-event output cable to output a break signal? (Mar. 20, 2001)
- Which debugger commands disturb the emulator MCU executions during a RUN? (Jul. 5, 2000)
- Does the emulator debugger PDxx operation affect the MCU execution speed or conditions? I would like to know how the emulator PC4701 reads out data from the MCU in real-time.(Jul. 5, 2000)

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Others

- What is the correct timing for turning ON/OFF the power supply to PC4701U and the target system? (Sep. 5, 2001)

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PC7501 Emulator for M16C Family

See Tool News for this product

Last Updated: October 20, 2003

- After installing the emulator debugger and connecting the emulator through the USB port, the new device is still not recognized by the system.(Oct. 20, 2003)*New!*

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M306xxTx-RPD-E Emulation Pod for M16C/60,30 Series

See Tool News for this product

Last Updated: April 4, 2003

- When I set an address match-interrupt at F8000h, the emulator malfunctions. (April 04, 2003)*New!*
- If the target system is reset during the STEP execution, can the debugger continue to debug normally? (Feb. 20, 2003)
- I modified the setting of the port P9 direction register in my program, but the setting doesn't change. What's the problem? (Oct. 7, 2002)
- Please supply the connection diagram for the through-holes of Flexible Cable FLX100 of the emulation pod. (Aug. 20, 2002)
- I can't get a program to run in the memory expansion mode or microprocessor mode on an M16C/60 Series emulation pod, even though it runs in the single-chip mode. What could be the problem? (Mar. 5, 2002)
- I changed the setting of the port P9 direction register with the emulator debugger, but the status doesn't change. What's the problem? (Mar. 5, 2002)
- Can the power supply to the target system be turned ON/OFF during a free run operation on the emulator debugger (M3T-PD308 or M3T-PD30)? (Feb. 20, 2002)
- When debugging the operations in just one sub-block using emulation pod M306NOT2-PRD-E emulation pod (for M16C/6N Group), the UART, timers, and other peripheral functions still operate normally even though the main clock is stopped. (These functions did stop in the evaluation MCU). Why is this happening and what is the work-around for this problem? (Dec. 20, 2001)
- I am debugging a program that uses a timer interrupt, but the timer interrupt is still generated even after the program stops. What is causing this? (Dec. 20, 2001)
- I am using Emulation Pod M306N0T2-RPD-E (or M306N0TB-RPD-E) for the M16C/6N Group MCUs; however, the M16C/6N Group is the model recommended the change to the new model. When switching from either M16C/6N0 or M16C/6N1 to M16C/6NA or M16C/6NB, will it be necessary to purchase a new emulation pod as well? (Oct. 19, 2001)
- How can I estimate how much more power will be consumed from the target system when connecting M30620T2-RPD-E or M306N0T2-RPD-E? (Sep. 5, 2001)
- Can I debug an M16C/61 Group MCU (M30612) with M30620TB-RPD-E, the M16C/62 Group emulation pod? (Jul. 23, 2001)
- I am using Emulation Pod M306xxTx-RPD-E with the 100LCC-80QSB pin-converter board, but the POWER LED on the STATUS OF TARGET side of Emulator PC4701 doesn't turn on. (Jan. 22, 2001)
- My target system, which has been working with Emulation Pods M30620T-RPD-E/ M30620TB-RPD-E, does not work properly with Emulation Pod M30620T2-RPD-E. What are the differences between M30620TB-RPD-E and M30620T2-RPD-E? (Jul. 5, 2000)
- Can I use Emulation Pod M30620T-RPD-E or M30620TB-RPD-E for M16C/62A debugging? (Jul. 5, 2000)
- Concerning the extended A/D function of M30620T-RPD-E, M30620TB-RPD-E and M30620T2-RPD-E: when I use bit 0 of Port P0 for the A/D function,
  1. can I use Bit 0 of Port P2 as an I/O port?
  2. can I set Bit 0 of Port P10 as an input mode and use Bits 1 to 7 of Port P10 as I/O ports? (Jul. 5, 2000)
- The value at the fixed vector table is different from the value set in the program I downloaded. Why? (Jul. 5, 2000)

- I would like to know the differences between M30620T2-RPD-E and M30620T-RPD-E/M30620TB-RPD-E. (Jul. 5, 2000)
- I invoke the PD30 emulator debugger and input "MAP 4000H, 027FFFh, EXTERNAL" in the SCRIPT WINDOW for the CS2 setup. Then, when I execute the "Go" command, my program malfunctions. (Apr. 20, 2000)
- Just after the emulator power-on, the emulator will activate the memory area of chip select CS2 regardless of user program execution. Why? (Apr. 20, 2000)
- I applied a reset from the target system in the emulator but the program did not work properly. Are there any differences between the emulator reset and the actual chip (Mask version MCU) reset? And, are there any differences when executing a reset from the emulator debugger PD30? (Apr. 20, 2000)
- After connecting the emulator to the M16C/62 Group emulation pod and executing a self-check, the emulator will not shut down normally. What's the problem?
- The emulator and emulation pod are connected to the target system, but they do not operate (the emulator LED indicates an error). What's the problem?
- My emulation pod and emulator are connected, but the emulator won't turn on. What's the problem?

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M302xxT-RPD-E Emulation Pod for M16C/20 Series

See Tool News for this product

Last Updated: April 4, 2003

- When I set an address match-interrupt at F8000h, the emulator malfunctions. (April 04, 2003)*New!*
- If the target system is reset during the STEP execution, can the debugger continue to debug normally? (Feb. 20, 2003)
- Can the power supply to the target system be turned ON/OFF during a free run operation on the emulator debugger (M3T-PD308 or M3T-PD30)? (Feb. 20, 2002)

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M301xxT-RPD-E Emulation Pod for M16C/10 Series

See Tool News for this product

Last Updated: February 20, 2003

- If the target system is reset during the STEP execution, can the debugger continue to debug normally? (Feb. 20, 2003)*New!*
- Can the power supply to the target system be turned ON/OFF during a free run operation on the emulator debugger (M3T-PD308 or M3T-PD30)? (Mar. 5, 2002)

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M16C Programming Adapters

See Tool News for this product

Last Updated: December 20, 1999

- For some reason, I can not program my Renesas MCU. What are the possible problems? (Dec. 20, 1999)
- Can I use a Renesas EPROM programming adapter, for example PCA7412F-100, to reprogram a Renesas Flash MCU? (Dec. 20, 1999)
- Can I use a gang-programmer in combination with an PROM MCU programming adapter. (Dec. 20, 1999)
- Can I program with a ROM writer other than the ROM writers recommended by Renesas?
- How should I program the M16C/60 internal 128KB ROM?

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FAQs

Accessory Tools

November 5, 2003

M30201T-56FP (July 5, 2000)	Converter for Connecting the Pod Probe M30201T-PRB to 56-pin 0.65mm-pitch QFP (used for the M30201 Group)
M37530T-PTCC (May 20, 2002)	Converter for Connecting 42-pin RSS Type Emulator MCU to 32-pin 1.778mm-pitch SDIP (for 7531 and 7540 Groups)
SEAL100FP (Apr. 20, 2000)	100-pin Standard Pitch Conversion Seal Boards
M38C89T-ADF (Nov. 5, 2003 Updated)	Temporary Target Board for M38C89RLFS
M3T-100LCC-80QSB (Jan. 22, 2001) (Originally 100LCC-80QSB)	Converter from 100-pin 0.65mm-pitch LCC to 80-pin 0.65mm-pitch QFP (for M16C/60 Series)
M3T-DCT42B-450 (Sep. 20, 2000) (Originally DIRECT42-450-50)	Direct Dummy IC for 42-pin 0.8mm-pitch SSOP
M3T-DUMMY64 (Nov. 19, 2002)	Dummy IC for 64-pin 0.8mm-pitch QFP (64P6N-A)
M3T-DUMMY80 (July 5, 2000) (Originally DUMMY80)	Dummy IC for 80-pin 0.8mm-pitch QFP (80P6N-A)
M3T-DUMMY100S (July 5, 2000) (Originally DUMMY100S)	Dummy IC for 100-pin 0.65mm-pitch QFP (100P6S-A, 100P6S-E)
M3T-FLX100 (Apr. 20, 2000) (Originally FLX100)	100-wire Flexible Cable
M3T-FLX-80QSB (July 5, 2000) (Originally FLX-80QSB)	Converter for Connecting the 100-wire Flexible Board FLX100 to 80-pin 0.65mm-pitch QFP
M3T-SSOP42B-450 (Sep. 20, 2000) (Originally SSOP42B-450)	Direct Dummy IC for 42-pin 0.8mm-pitch SSOP

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Others

Last Updated: September 5, 2003

Contents

- User Registration
- Tool News
- License ID
- Guarantee and Repair UP

* The FAQs of this page are for the Tools for M32R family, M16C family, 7700 family, 740 family, 4500 series, 720series MCUs.

User Registration

- How do I know if I have already completed my user registration or not? (Feb. 5, 2002)
- I need to change/cancel my registration. (Feb. 20, 2003)
- How can I check the details concerning my registration? (Jul. 5, 2001)
- How do I know my registration is completed? (Jul. 5, 2001)
- Do I have to register for updated products? (Jul. 5, 2001)

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Tool News

- How can I successfully printout Tool News from the Web site? When I try to print out Tool News on A4-size paper, the right side gets cut off. (Aug. 5, 2003)

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License ID

- How can I find out the type and license ID of the emulator debuggers included in the CD-ROM that comes bundled with Emulators PC4701U/PC4701M? (Jul. 22, 2003)
- I forgot my license ID for the software tool. How can I get it? (Dec. 5, 2002)

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Guarantee and Repair

- Please provide details concerning hardware tool repairs. (Sep. 5, 2003) UP
- What kind of guarantee covers RSO hardware tools? (Aug. 20, 2003)

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Last Updated: January 7, 2003
Document Number: 02122003_e

Q.

In what kind situation is the -LOC option used for ln308 and ln30?

A.

The -LOC option is for applications that run a program on the RAM.
The RAM address for the program to be run on the RAM is defined by the -ORDER option. The ROM address, where the program to be transferred to the RAM is registered, is defined by the -LOC option.
However, the function of the -LOC option is only to register the defined program to the specified address. It does not send the program to the address area during execution of the application.

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Last Updated: September 20, 2000
Document Number: 01051222_e

Q.

I am aware of -M62E option (outputs an object code for M16C/62 Group expansion area) as a boot-up option for NC30, AS30, and LN30, but would like to know what options there are when not using the expansion area.

A.

There is no need to specify any boot-up option for the MCU; the default option specified for NC30, AS30 and LN30 is "M16C/62 Group MCU: expansion area not used".

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Last Updated: August 25, 2000
Document Number: 01051223_e

Q.

Can I output the same warning contents as "-Wall" without actually specifying "-Wall"?

A.

The same warning as that of "-Wall" is output by the following four options: -Wnon_prototype(-WNP), -Wunknown_pragma(-WUP), -Wnesting_comment(-WNC), and -Wuninitialize_variable(-WUV).

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Last Updated: August 25, 2000
Document Number: 01051224_e

Q.

The "-Wall" option outputs all detectable warnings. Exactly what warning options do these detectable warnings apply to?

A.

These warnings apply to the following four options: -Wnon_prototype(-WNP), -Wunknown_pragma(-WUP), -Wnesting_comment(-WNC), and -Wuninitialize_variable(-WUV).

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Last Updated: August 25, 2000
Document Number: 01051286_e

Q.

How can I find out the version numbers of the programs in the NC30WA package?

A.

Please execute NC30WA with command option -V ("V" must be upper case letter). Then, each program included with NC30WA will output a startup message and close its operation. With this command option, the programs do not perform their actual compile operations.

[Execution example: NC30WA V.3.20 Release 1]

```
C:\>nc30 -V
M16C/60 NC30 COMPILER V.3.20 Release 1
Copyright 1999 MITSUBISHI ELECTRIC CORPORATION
and MITSUBISHI ELECTRIC SEMICONDUCTOR SYSTEMS CORPORATION
All Rights Reserved.

M16C/60 C Compile Driver        Version 2.10.00
NC Preprocessor                 Version 4.00.07
M16C/60 C Compiler              Version 3.20.03 (NC_CORE Version 2.02.00)
M16C Family Assembler system Version 3.20 Release1
   Assembler Driver (as30) for M16C Family Version 3.20.00
   Macro Processor (mac30) for M16C Family Version 3.20.00  (core 1.00.02)
   Structured Processor (pre30) for M16C Family Version 1.10.11
   Assembler Processor (asp30) for M16C Family Version 3.00.01
   Linkage Editor (ln30) for M16C Family Version 3.00.00
   Librarian (lb30) for M16C Family Version 1.00.02
   Load Module Converter (lmc30) for M16C Family Version 3.10.03
   Cross Referencer (xrf30) for M16C Family Version 2.00.10
   Absolute Lister (abs30) for M16C Family Version 2.10.03

C:\>
```

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Last Updated: August 7, 2000
Document Number: 01051226_e

Q.

The Manual indicates that the "-Wall option" will display all detectable warnings. Does this also output the contents of other warning options, such as "-WUV", "-WNC", and "-WLTS"?

A.

The following options are valid when "-Wall" is specified:

- -WNP
- -WUP
- -WNC
- -WUV

Only the following option needs to be specified separately:

- -WLTS

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Last Updated: August 7, 2000
Document Number: 01051006_e

Q.

Which has higher priority, the optimization option or the de-optimization option?

A.

The option for de-optimization has higher priority. If both options are specified at the same time, the specified de-optimization option is executed.

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Last Updated: August 7, 2000
Document Number: 01051007_e

Q.

When I specify several optimization options, in what priority are the options processed?

A.

When you specify several optimization options at the same time, they are processed in the following manner:

- When two or more options from "-01 to -05" are specified at the same time: the last option specified remains valid.
- When "-0(number)" and "-0R" are specified at the same time: both remain valid.
- When "-0(number)" and "-0S" are specified at the same time: both remain valid.

* -0R and -0S cannot be specified at the same time.

[Example: When -0R and -01 are specified at the same time]
The -0R optimization is performed but -0(number) de-optimized is not performed.

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Last Updated: August 7, 2000
Document Number: 01051008_e

Q.

Can I define the optimization contents in detail with optimization option "-ONSBD"?

A.

No, there is not an option that will allow you to set the details of the de-optimization.

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Last Updated: August 7, 2000
Document Number: 01051009_e

Q.

When optimization option "-ONSBD" is specified, what kind of de-optimization happens?

A.

The following de-optimizations are performed:

- - Common statement expressions are merged (so that the same statement expressions will not be calculated repeatedly)
- - Common instruction blocks are bound together (repetitive instructions are replaced by branches)
- - Multiple byte-store operations to sequential addresses are converted to word-store operations
- - Sequential constant byte-push operations are converted to word-push operations
- - Continuous shift operations are bound together (bind "b=a<<2; b<<=2;" to "b=a<<4", etc.)
- - Bit operations are grouped into OR, AND operations
- - 'for' statement loop condition check is moved to the end of the loop to reduce redundant loop compare operations
- - Unconditional branch to "return" statement is replaced with "return" statement (NC308 only)
- - Multiply/division by multiples of 2 is replaced to shift operation
- - Auto variables is assigned to register
- - Constants are folded in

* Note that these optimizations may not be performed depending on pre and post statements.

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Last Updated: August 7, 2000
Document Number: 01051231_e

Q.

Do the directory names specified by compile driver "option -I" have a certain priority?

A.

When several directory names are specified with "option -I", the include files are retrieved in the order they were specified. In the following example, "c:\nclude\aaa\sample.h" file is included.

[File Assignment Example]

```
c:\include\aaa\sample.h       include file
c:\include\bbb\sample.h       include file
c:\test\sample.c              C source file which includes sample.h
```

[Command Input Example]

```
c:\>nc30 -I c:\include\aaa -I c:\include\bbb sample.c
```

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Last Updated: July 21, 2000
Document Number: 01051232_e

Q.

When I specify command option -fextend_to_int and compile my file, the calculation result is sometimes different from what I expected. Why is that?

A.

When the compiler sees this command option, the compiler extends char type variables to int type variables. Therefore, when the following example is compiled with this option, the result will be different from the normal result.

[Example program]

```
main()
{
        unsigned char c=0xff,cc=0x00;

        if(c!=~cc)
                printf("Ok\n"); /* with -fextend_to_int */
        else
                printf("NG\n"); /* without -fextend_to_int */
}
```

In this example, the compiler extends the char type variable to the int type variable first, then the compiler performs operator ~. As a result, the upper side is always FF. Therefore, the result of this "if" comparison is TRUE.

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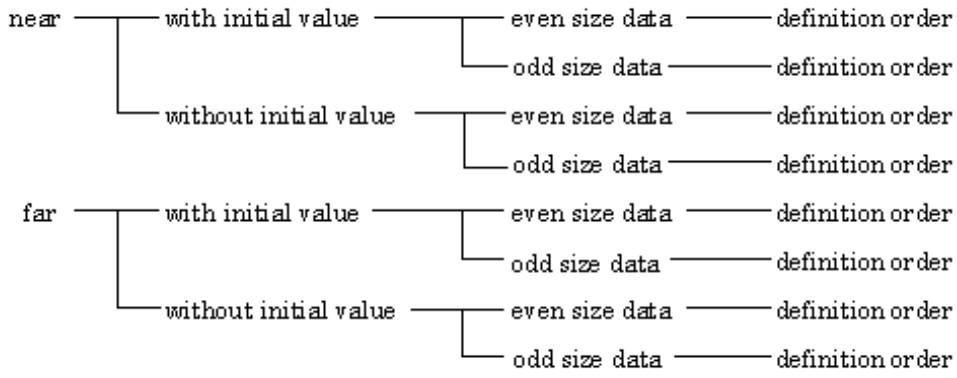
Last Updated: December 20, 2000
Document Number: 01050997_e

Q.

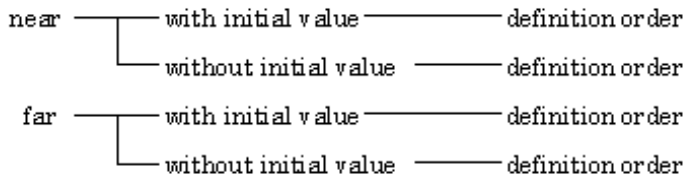
When making my program in C language, I want to place the global variable according to the sequence described in the definition. How can I do this?

A.

Normally, each global variable is placed in the groups of attributes shown below:



You cannot put the global variable in order unless you separate the variables without initial values from the variables with initial values. But, if you execute a compile specifying command option -fno_even, you can avoid separating the even and odd sized variables. When doing so, put the global variable in the following order:



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Last Updated: September 20, 2000
Document Number: 01051234_e

Q.

What kind of declaration should I make in order to assign the array body in a far area and assign the array's reference pointer in a near area?

A.

For example, to declare a 64-byte short-type array, make the following declaration.

```
/* (1) declare array body */

   short far data[64];

/* (2) declare pointer to array */

   short far *pdata;
```

The pointer in (2) above should be assigned in a near area in the following manner. The destination indicated by the pointer is a far area.

```
near |----------|
     |- pdata  -| <---4 bytes (stores the start address of the array)
     |----------|
     |          |
```

In addition, you can change the area assigned by the pointer to the array, as well as its destination area, as follows.

```
short * far pdata
    /* (a) pdata in a far area and its pointer destination in a near area
           (if far is omitted, it will be treated as near)*/

short far * far pdata
    /* (b) pdata in a far area and its pointer destination in a far area */

short far * pdata
    /* (c) pdata in a near area and its pointer destination in a far area */

short * pdata
    /* (d) pdata in a near area and its pointer destination in a near area */
```

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Last Updated: August 7, 2000
Document Number: 01051235_e

Q.

How can I make each function that I describe with C language into an absolute address (fixed address)?

A.

In NC30WA, the functions are located in the program section. So, to locate the functions at absolute addresses, you will need to specify the program section with an absolute address. Specify the assigned address in the program section using the pseudo instruction .org after the ".section program" line in the sect30.inc file.

[Example: When assigning a function to address 10000H, specify the function in the sect30.inc file as follows.]

```
.section  program
.org   10000H
```

When assigning each function to a separate address, using the "#pragma SECTION" for the function you are assigning, create a section name other than "program section", and specify the function to be assigned to the address under the new section name.

[Example: When assigning function func() to section "program1" and assigning that section to address 20000H,]

1. Specify the section name where the function will be assigned, as follows:

```
#pragma SECTION program program1
func()
{
}
```

2. Specify the assigned section address in the sect30.inc file, as follows:

```
.section  program1
.org   20000H
```

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Last Updated: July 21, 2000
Document Number: 01051236_e

Q.

I want to place CONST-declared data at the place that I assign in the ROM.

A.

Please write your program in the following manner:

1. Declare variables which you want to place in the ROM with "#pragma ROM".
2. Modify the start-up program so that the section "rom_FE", where the above-mentioned variable will be placed, is properly mapped in the specified location.

The following shows an example of the declared variable "text" placed at 0xF9000.

1. Declare the text with "#pragma ROM":

```
#pragma ROM text
const char text[5]={"text"};
```

   Based on the above declaration, the following assembler code is generated:

```
        .SECTION        rom_FE,ROMDATA   ;<--Section rom_FE
        .glb    _text
_text:
        .byte   74H     ;  't'
        .byte   65H     ;  'e'
        .byte   78H     ;  'x'
        .byte   74H     ;  't'
        .byte   00H
        .END
```

2. Modify start-up program (setc30.inc):

```
        .section        rom_FE,ROMDATA
        .org            F9000H        ;<--specify the address for this section
rom_FE_top:

        .section        rom_FO,ROMDATA
rom_FO_top:
```

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Last Updated: July 21, 2000
Document Number: 01051237_e

Q.

How do I specify the following absolute address when using the above the "#pragma ADDRESS" declaration?

[Absolute address declaration Example]

```
#define AAA    (*(volatile unsigned char *)0x000406)
```

A.

To specify the above-mentioned address, 0x0406, with "#pragma ADDRESS", please specify it in the following way:

```
#pragma ADDRESS AAA 000406h
volatile unsigned char AAA;
```

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Last Updated: March 21, 2000
Document Number: 01051238_e

Q.

How can I locate library functions in a ROM address when linking. Also, is there a section for library functions that enables me to make section assignments during a link?

A.

There is no section prepared for library functions. To do this, you need toobtain the library source program which we supply in NC30WA and define a section name with the NC30 expansion function #pragma section in the source program.

Description method of the "#pragma SECTION"
First, add the following statement to the top of the source program. #pragma SECTION program library Next, complete and assemble it like a regular function. Finally, specify the necessary address for this library section during the link.

(NOTE)

Please note that a library function written by assembler is not applicable for this method. You must use ".section program" to specify the section.

(Reference info)

Library source programs are installed in directory src30\lib. (Please make sure that you specify the library source copy option when you install NC30WA.)

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Last Updated: August 25, 2000
Document Number: 01051239_e

Q.

I defined a numerical value for the character string by the "#define" preprocess command. However, the operation of this expression using this string did not result in the expected value. Why not?
In the following example, operation 'cul' does not result in the expected value, 0x04AAAA.

[Program Example]

```
#define      V1       0x040000
#define      V2       0x0AAAA + V1

cul = (WORD *)v2
```

A.

In the above program example, the result using '#define' becomes:
[Note] This '#define' expression results in a character string only (not a numerical value).

```
cul = ( WORD *)0x0AAAA+ 0x040000;
```

In this expression, the (WORD*) cast is only applicable for 0x0AAA. 0x040000 will be added to the expression, in other words, added to the "int" pointer. Therefore, the result is 0x80000.

In order to get the proper value, place ( ) to the expression which you define with "#define".

[Program example]

```
#define      V2       (0x0AAAA + V1)
```

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Last Updated: November 20, 2001
Document Number: 01112002_e

Q.

Can I use KANJI(Chinese) characters in C source programs?

A.

Yes, you can. Japanese characters can be used in NC30.
The following character types can be included.

- kanji
- hiragana
- full-size katakana
- half-size katakana

It is necessary to set up the environment variables to use Japanese characters. Please refer to NC30 User's Manual "Description of Japanese Characters" for setting method.

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Last Updated: December 20, 2000
Document Number: 01051240_e

Q.

When executing the following program, long-type variable "l" is supposed to hold "-1". However, the results become 0xF(15). How can I make the results be "-1"?

```
void main( void )
{
    struct
    {
        short r : 10 ;
        short i : 4 ;
        short s : 2 ;
    } buf ;
    long l ;


    buf.i = -1 ;
    l = (long)buf.i ;
}
```

A.

NC30WA processes the bit field member type as 'unsigned'. Therefore, when a long type variable is stored (transferred), the value is 'zero-expanded'. To have this treated as 'signed', make sure you explicitly declare it as 'signed' in the bit field member type declaration.

[Example]

```
   struct
   {
       signed short r : 10 ;
       signed short i : 4 ;
       signed short s : 2 ;
   } buf ;
```

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Last Updated: August 25, 2000
Document Number: 01051242_e

Q.

When I evaluated an expression using the function specified in an external file, the expression was evaluated by a type other than the type which the function specifies. Why does this happen?

A.

Probably the problem is that the function specified in the external file is declared without "extern". When a function without the 'extern' declaration (prototype declaration) is referenced, the function is automatically assumed to be an int type, as indicated in the ANSI specifications. We can assume that this is the reason your expression is evaluated as a type other than originally specified.

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Last Updated: August 25, 2000
Document Number: 01051243_e

Q.

Why doesn't the compiler generate an error when I reference an external function that has not been declared as "extern"?

A.

When there is no extern declaration (prototype declaration) for the function, the function is assumed to be an int type function, as per the ANSI specifications. Therefore, the function is referenced externally as 'in type', and no error is generated. To detect functions that do not have an extern declaration (prototype declaration), specify the -Wno_prototype (-WNP) or -Wall option during the compile. This will generate warnings for functions that do not have a prototype declaration.

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Last Updated: August 25, 2000
Document Number: 01051244_e

Q.

In a C language program, if I declare two variables with the same name and same type in the same file, will an error be generated?

A.

No, neither an error nor a warning will be generated.

This is in compliance with the ANSI specifications:

- - There can be multiple external declarations for variables of the same name in one file, as long as the type assigned to that name does not differ.

  Example 1: No error generated

```
int i;
int i=1;

main()
{
}
```

  Example 2: Duplicate definition error generated

```
int i;
char i;

main()
{
}
```

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Last Updated: August 25, 2000
Document Number: 01051245_e

Q.

I declared the function which specified "#pragma PARAMETER" as prototype, but the function name that I get after compiling starts with "_". Why doesn't it start with "$"?

A.

The function specified with "#pragma PARAMETER", whether a prototype or not, always starts with "_". Because the function that is specified by "#pragma PARAMETER" is a function described in assembler, if we use both "_" and "$", the assembler function will have to be modified as well. Therefore, we have fixed the prefix to "_".

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Last Updated: August 25, 2000
Document Number: 01051000_e

Q.

Does the prototype declaration determine how the function argument is passed?

A.

The prototype declaration not only determines how the function argument is passed, but also specifies the size of the argument. Accordingly, when a function that does not have a prototype declaration is called, it may cause integrity violation of the argument of an actual function in another file. Therefore, we strongly recommend that you specify a prototype declaration for the function you are using.

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Last Updated: August 25, 2000
Document Number: 01051001_e

Q.

Does the passing method of function arguments affect the program's interchangeability?

A.

If the function has a prototype declaration, the compiler will determine how the function argument is passed. Therefore, the program's interchangeability has no affect on how the function argument is passed.

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Last Updated: August 25, 2000
Document Number: 01051002_e

Q.

Is there any difference in the speed or size of the program when a function argument is passed by a register compared to a stack?

A.

Passing by register can be faster and smaller than passing by stack.

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Last Updated: August 25, 2000
Document Number: 01051003_e

Q.

What are the required conditions for a function argument to be passed by a register?

A.

Registers will pass function arguments when the following conditions are met:

1. The function has a prototype declaration and the type of function is already fixed when the function is called.
2. The prototype declaration does not use the variable argument "...".
3. The type of function argument is included on the list below.

[For NC30]

Argument	Type of Argument	Register to be Used
1st argument	char type	R1L register
	int type near pointer type	R1 register
2nd argument	int type near pointer type	R2 register

[For NC308]

Argument	Type of Argument	Register to be Used
1st argument	char type	R0L register
	int type near pointer type	R0 register

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Last Updated: August 25, 2000
Document Number: 01051250_e

Q.

When I do a Build, the following error is displayed:

samp.c 190 Error (ln30):.\samp.r30:'$func1' value is undefined

Normally, when there is no reference function, a function with "_", as in "_func1", is displayed. Why is this one displayed with "$"? The func1 function exists in a different file.

A.

NC30WA has two types of methods for naming functions:

1. Add "_" to the start of the function name.
2. Add "$" to the start of the function name.

[The differences between "_" and "$"]

- "_" indicates that there is no function argument or that all arguments are passed by the stack.
- "$" indicates that at least one function argument is passed by a register. (In NC30WA, one of the conditions for a function argument to be passed by a register is that the function has a prototype declaration.)

[Speculated cause of error message]
Probably you are calling func1 using "$func1", but the actual name is "_func1". If this is the case, the prototype is declared in the calling side, but not declared in the function side. Please make sure the function side has a prototype declaration.

[How to confirm a prototype declaration]
By specifying options -WNP or -Wall during the compile, a warning will be issued for any function that does not have a prototype declaration.

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Last Updated: August 7, 2000
Document Number: 01051251_e

Q.

When I declared "const" character string data as the structure, the compiler generated not only constant data but also assembler code that reserve a ROM area. What is this ROM area for?

A.

The compiler reserves two types of ROM areas: one area for placing constants and one area for placing the address pointer indicating the constant location start address. The following example shows how the NC30WA compiles the structure.

[Structure Declaration Example]

```
typedef struct {
    uchar   SIZE;
    uchar   far *DATA;
    }TEMPLATE;

const TEMPLATE TBL_TEMPLATE[];

const TEMPLATE TBL_TEMPLATE[] = {
    { 2, (uchar far *)"\x10\x04"  },
    { 2, (uchar far *)"\x10\x04"  },
    { 2, (uchar far *)"\x10\x04"  }
   };
```

[Structure Data Definition Example]

1. Character string is placed in a specified area "\x10\x04" at (location).
   NC30WA adds the label [___ TO] this address.

2. Following two types of structure data are placed in the ROM area
   These types only repeat the number of the array's elements.
   - ❍ - Constant 2
   - ❍ - Address of character string (the above mentioned "\x10\x04", __TO, which becomes "__TO")

   Accordingly, { 2, (uchar far *)"\x10\04" }is converted to the following assembly code.

```
    _TBL_MSTEMPLATE:
        .byte   02H  ;<============== Constant 2 1 byte
        .word   (___T0)&0FFFFH ;<==== lower 2 bytes of address of letter-string
        .word   (___T0&0FF0000H)>>16 ;upper 2 bytes of address of letter-string
```

3. "\x10\x04" is output at the location indicated by the _TO label.

```
    ___T0:
        .byte   10H
        .byte   04H
        .byte   00H  ;<== End of character string, NULL is included.
```

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Last Updated: July 21, 2000
Document Number: 01051252_e

Q.

I want to assign all registers (R0, R1, R2, R3, A0, and A1) as register variables. Is it possible to do this with the NC30 compiler?

A.

Yes, the NC30 compiler will allow this type of assignment.

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Last Updated: July 21, 2000
Document Number: 01051253_e

Q.

I want to use register variables with the NC30 compiler. How can I do that?

A.

When you specify compile option -fER (-feneble_register), the compiler treats the variable as a register.

[Example program]

```
register int reg_a
```

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Last Updated: July 21, 2000
Document Number: 01051254_e

Q.

When I specify an absolute address with "#pragma ADDRESS", do I have to use the "volatile" declaration, too?

A.

No, you do not need to use "volatile" declaration. The compiler treats the address as "volatile" automatically.

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Document Number: 01051255_e

Q.

When I am linking my program, the linker generates this error: 'function-name' value is undefined. But the function itself actually exists. What's wrong?

A.

The caller references the function as '_function-name' but the entity is defined as '$function-name'. The probable causes are that either the function prototype declaration has not been defined or the arguments in both sides do not match. Please confirm the prototype declarations again.

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Last Updated: May 08, 2003
Document Number: 03022001_e

Q.

The stack overflowed even though I reserved the correct stack size as displayed in the Stk Viewer. Is the stack size shown in the Stk Viewer not enough?

A.

The stack size displayed in the Stk Viewer is for reference only.
The Stk called by the Stk Viewer is a stack size calculated based on the stack information contained in the absolute module file output by the compiler. The size is a theoretical value only and was not derived from a trace of the actual program. In addition, the Stk does not reflect interrupt functions.

To calculate the stack size to reflect the interrupt function, add the stack size of interrupt function to the stack size of the function for which interrupt processing is generated or the stack size of the assembler routine: they displayed in the Stk Viewer.

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Last Updated: September 5, 2001
Document Number: 01080601_e

Q.

I am using Integrated Development Environment TM V.3.01, and, after making additions to my program, I got the following message: "No. 6. Stk Viewer: Out of memory". What is the work-around for this?

A.

This is error probably occurring because there is not enough internal buffer in the STK Viewer.
In order to adjust the STK Viewer buffer, you can either modify the STK Viewer registry information or register the STK Viewer as an other tool.

1. **How to modify registry information**
   In this method, the STK Viewer button in the TM project bar is used as is.
   * Make sure you have a back up, as you will be directly handling the registry.

   1. In the Windows Start menu, select [Run...].
   2. Start up the registry editor by inputting "regedit" and clicking on the OK button.
   3. Select the following in the registry editor tree: [HKEY_LOCAL_MACHINE] - [Software] - [MITSUBISHI SEMICONDUCTOR SYSTEMS] - [name of cross-tool package you want to use] - [stk]
   4. Double click on the Param icon to open the Edit String dialog box.
   5. Insert the following option at the start of the value data. Make sure you leave one space between the option name and -jar.
      -Xmx600m
   6. Click on the OK button to close the dialog.
   7. Close the registry editor.

2. **How to register the STK Viewer as an other tool**
   This method will add an STK Viewer button to the TM tool bar.
   1. Boot up TM.
   2. Click on the tool registration button in the project bar to open the Tools Information Dialog.
   3. Click on the APPLICATION tab, then click "Add button". This will open the Application Information dialog.
   4. Set the Application Information dialog as follows:

      Name : STK Viewer
      File Path : D:\MTOOL\BIN\StkViewer\jre\1.2\bin\javaw.exe
      Parameter : -Xmx600m -jar D:\MTOOL\BIN\StkViewer.jar -prj %P -target %T -x %X

      In the D:\MTOOL section, specify the directory in which the cross-tool has been installed
   5. Click on the OK button and close the dialog.

Set the buffer to the maximum value, as shown above, and make adjustments using the -Xmx option. "600m" indicates 600M bytes. If you still get the "Out of memory" error, increase this value.

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Last Updated: August 25, 2000
Document Number: 01051256_e

Q.

How can I specify a static function for the stack consumption calculation function with stk30?

A.

With stk30, you cannot specify a static function for the function that will start calculation of the stack consumption. You can specify a static function for this task in following method unless there is another function with the same name in the file, which will disable the operation the function should perform.

- In the "**.stk" file, replace "STATIC FUNCTION" with "FUNCTION". Specify the "-e" option as the function that will start the calculation, and then execute stk30.

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Last Updated: August 7, 2000
Document Number: 01051010_e

Q.

When I generated sbdata.h with the SBDATA declaration utility (utlxx), some of the variables become comments. Why is this?

A.

The variables declared by the SBDATA in the program are already assigned to the SBDATA area with a priority. The SBDATA declaration utility assigns variables for the remaining block. Therefore, the variables that were not assigned to the SBDATA area are output. Variables are output as two types of comments:

1. Comments Variables already declared by #pragma SBDATA
   Indicated by "@" at the end of the comment.

```
  //#pragma  SBDATA  ***********            /* size=(   1) / ref=[    22] @ */
```

2. Variables that the utility could not allocate in SBDATA

```
  //#pragma  SBDATA  ***********            /* size=(   1) / ref=[    22] */
```

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Last Updated: July 21, 2000
Document Number: 01051258_e

Q.

Can the NC30 compiler assign a register for local variables when the optimization option is specified?

A.

Yes, the NC30 compiler tries to assign registers for local variables by specifying the optimization option even when you do not assign a register variable.

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Last Updated: March 21, 2000
Document Number: 01051259_e

Q.

In the program example, variable b is over written at the line stated by [l=ReceiveByte(4);] in the compiled assembly code. Why does this happen?

Example program	Assembly code

`void IntS4R(void)`
`{`
`  long l;`
`  char c,b;`
`  b=ReceiveByte(4);`
`  l=ReceiveByte(4);`
`}`
	`void IntS4R(void)`
	`{`
	`  long l;`
	`  char c,b;`
	`  b=ReceiveByte(4);`
	`  MOV.B  #4,R1L`
	`  JSR.A  $Receive`
	`  MOV.B  R0L,-4H[FB]`
	`  l=ReceiveByte(4);`
	`  MOV.B  #4,R1L`
	`  JSR.A  $Receive`
	`  MOV.W  R0,-4H[FB]`
	`  MOV.W  R2,-2H[FB]`
	`  EXITD`
	`}`

A.

This code is a result of the NC30WA optimization.

In the example program, auto variables b and l exist in different blocks (blocks in which the variable is valid). Variable b is used for storing a return value of the function ReceiveByte. After that, b is never used. Therefore, variable b can share the same auto area with variable l.

For this reason, if the variable active blocks do not overlap, NC30WA optimizes the stack area for more efficient processing.

When a write-access to a variable occurs, it appears that the same access happened to variable b. If variable be is in use at the same time l is in use, the above auto-area overlay will not happen.

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Document Number: 01051260_e

Q.

My port access statement is not properly generated as a binary code when I use the optimization option. Why not?

A.

The code is considered meaningless due to the use of optimization, and the compiler deletes it. To tell the compiler this information is important, declare this variable as volatile.

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Document Number: 01051261_e

Q.

Since sequential bit accesses are grouped into one operation, an interrupt occurring during this operation sometimes causes my program to mis-operate. What can I do to avoid this?

A.

The compiler optimizes this series of operations into one operation. By specifying the -ONB (-Ono_bit) compile option, you can make the compiler suppress this optimization.

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Last Updated: August 7, 2000
Document Number: 01051011_e

Q.

When using NCxxWA, how can I prevent my application from linking unnecessary functions, such as MALLOC() and MEMCPY()?

A.

The MALLOC() and MEMCPY() functions are used for maintaining the HEAP area set by the start up program (ncrt0.axx, sectxx.inc). If your application does not need such memory management functions, delete the HEAP-size setting description in ncrt0.axx and sectxx.inc.

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Last Updated: July 21, 2000
Document Number: 01051263_e

Q.

When the linker links library files, does it perform any cross-referencing among libraries?

A.

No, it does not due to following reasons:

1. The linker operation speed is improved by not allowing cross-referencing.
2. If the linker has a library cross-reference function, the user has to be aware of which library needs which libraries at linking. This feature will burden the user with complicated library management.
3. Let us assume that the linker can cross-reference link-order independent libraries, so that the linker will specify multiple libraries. And, if one module is registered in multiple libraries, it will be very hard for the user to figure out which modules are linked.

Please note that the cross-referencing relocatable modules must be in the same library file.

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Last Updated: December 20, 2000
Document Number: 01051264_e

Q.

The FB Register is defined in ncrt0.a30, what is it used for? Can I modify its contents?
[FB Register defined place]

```
        ldc     #0h,fb  ; for debuger
```

A.

The FB Register is described in ncrt0.a30 for the debugger stack-trace. The FB Register is initialized to zero so that when the debugger performs a stack-trace, it determines the origin of the function call and then confirms the start or completion of the function call when the FB Register value becomes "0" (zero). Therefore, as long as you are not performing a stack-trace during debugging, the contents of the FB Register can be changed.

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Last Updated: August 7, 2000
Document Number: 01051265_e

Q.

I am developing a program for M16C/21. I created a new project with TM. The ncrt0.a30 file that was generated is described as "C COMPILER for M16C/60". Can I use this file as is?

A.

Yes, you can use the ncrt0.a30 startup file that was generated. However, there are a few differences between the M16C/62 and M16C/21 (for example, differing vector addresses), so be sure to make the necessary corrections according to the MCU and your system.

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Last Updated: November 19, 2001
Document Number : 01110502_e

Q.

The linker generates the following error message: "16-bits unsigned value is out of range 0 -- 65535. address = 'xxxx'" However, when I reduce the RAM size, this warning is not generated. What could be the cause of the problem?

A.

The above warning is issued during the link when a bit instruction is output for an area that is not covered by the bit instruction (covered area: 0H to 1FFFH). By reducing the RAM size, the variable in an uncovered area now becomes within the 0H to 1FFFH area, and therefore the bit instruction can reach it. The address at which the variable is located cannot be determined during a compile; it is specified during the link.

To avoid this problem, remove the following bit instructions from the output specifications.

(1) If -fbit (or -fB) is specified during the compile, remove it.

(2) If the corresponding variable is specified in #pragma BIT (or -fB), remove it.

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Last Updated: October 20, 2000
Document Number: 01051266_e

Q.

How should I describe the C-source statements to avoid getting the ln30 warning error "JMP.S instruction exist at end of bank (address xxxxx)"?

A.

Use assembler-command instruction ".SJMP" so that the assembler does not output the jmp.s instruction

- To disable the jmp.s instruction output: .SJMP OFF
- To enable the jmp.s instruction output: .SJMP ON

Enclose the area that generated the warning as follows: ".SJMP OFF" and ".SJMP ON"

[Example Declaration]

```
main()
{
     asm("    .SJMP   OFF");   //disable jmp.s instruction
     if(xxxxx)
            ......             //area that generated warning
     else
          .......
     asm("    .SJMP   ON");    //enable jmp.s instruction
}
```

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Last Updated: October 5, 2000
Document Number: 01051267_e

Q.

When I execute NC30 in the MS-DOS prompt, the following message comes up and I cannot perform the compile.

"This program cannot be run in DOS mode."

How can I work around this?

A.

You are probably executing NC30 in the following environment.

- MS-DOS prompt was invoked in the MS-DOS mode.
- The PC was started up with the MS-DOS mode.

NC30WA is a Windows application and cannot be operated in the MD-DOS mode, which is why you get the above message. You will need to disenable the MS-DOS mode as follows.
From the MS-DOS prompt:
---> Property
---> Setting Details
---> Cancel MS-DOS mode selection

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Last Updated: August 7, 2000
Document Number: 01051268_e

Q.

I upgraded the NC30WA with a version later than V.3.20 Release 1, and then I started getting a warning. I am concerned that there may be something wrong in my program.

A.

This warning indicates that the compiler successfully compiled your C program but the object codes may cause a malfunction. The following describes the two types of warning messages, the reasons they are issued, and the possible problems that may occur.

1. Warning(ccom): invalid return type
   This warning indicates that the return value of a function may be unknown. This will not cause any problems if the return value is not used in the caller function. But if the return value is used, you need to make sure that an undetermined return value won't cause a problem in your program.

2. Warning(ccom): assignment from const pointer to non-const pointer
   This warning indicates you are trying to do an "implicit variable type conversion", to input [constant far pointer to the constants] to [far pointer to the variable] which the compiler thinks it is invalid. If the CPU executes the above operation, the CPU may perform a write-operation at the address indicating a constant area. Therefore, the compiler sends a warning to you to make sure a write-operation does not happen at the destination address indicated by the subject pointer.

To prevent this message from being generated, input the pointer after executing the type conversion (cast) on the constant pointer.

[Program Example with Cast Execution]

```
uchar *addr;
uchar offset;
const uchar * const d_fig[] =
{
   000,001,002,003
}

func()
{
    addr = (uchar *)d_fig[offset];
}
```

[Program Example with Warning Generation]

```
uchar *addr;
uchar offset;
const uchar * const d_fig[] =
{
   000,001,002,003
}

func()
{
    addr = d_fig[offset];  /* The warning is generated */
}
```

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Last Updated: August 7, 2000
Document Number: 01051269_e

Q.

When I compile/assemble a C-source file which includes a structured assembler description enclosed with #pragma ASM and #pragma ENDASM using the TM, the TM generates a symbol miss error. How can I workaround this?

[Example]

- C language source file (samp.c):

```
void func(void){
#pragma ASM
        if R0 == 02h
                A0 = 1
        endif
#pragma ENDASM
}
```

- Error Message:

```
 samp.c 25 Error (asp30): Symbol is missing
 samp.c 26 Error (asp30): Symbol is missing
 samp.c 27 Error (asp30): Symbol is missing
```

However, when I invoke the as30 after making the intermediate file with nc30wa "option -S", I successfully get the r30 file with no error.

A.

When you execute the assembler through NC30 (compile driver), the assembler does not invoke structured pre-processor PC30. The assembler generates an error due to the structured description. When you use a structured assembler description enclosed with "#pragma ASM and #pragma ENDASM", execute the assembler alone and make sure the "-P option" is set for the pre30 to be invoked. After assembling your code, please review the output codes carefully as to whether the structured descriptions are properly assembled.

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Document Number: 01051270_e

Q.

When I execute the NC30 on Windows 95 'can't analyze error' is displayed and NC30 stops compiling my program. What's wrong?

A.

This problem may occur when your PC has resident virus checker but can be avoided by terminating the virus checker. Since termination of the virus checker seems to solve the problem, this indicates that the problem is caused by the virus checker itself, not the NC30WA. For more details, please contact the original manufacturer of your software.

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Last Updated: July 5, 2001
Document Number: 01062001_e

Q.

I made the following program in C.

```
    if (x++ == 5){
         aaasub();
    }
```

Upon examining the generated codes, it seems that variable x (the operand) is compared with 5 before the variable increment. Is the following description necessary in order to have variable x compared with 5 after the variable increment?

```
    x++;
    if (x ==5){
        aaasub();
    }
```

A.

There are two ways to use the increment (++) and decrement (--) operators: preceding the operand (pre-) or following the operand (post-).

pre-increment / pre-decrement: Increment or decrement operator precedes the variable (the operand).
post-increment / post-decrement: Increment or decrement follows the variable (the operand).

The program you made uses a post-increment, and the comparison of variable x and 5 is performed before the variable increment. To perform the desired operation, you have to use a pre-increment for variable x.

```
     if (++x == 5){
        aaasub();
     }
```

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Last Updated: October 20, 2000
Document Number: 01051271_e

Q.

When I describe a multiply expression in C language, the expression does not result in the expected value. Why not?
For example, as shown below, the expected value for y0 is 0x0300, but the actual result is 0x055.

[Program example]

```
#define  CONST_A  0x0400
#define  CONST_B  0x0c0

void main( void )
{
unsigned char   x0;
unsigned int    y0;

    x0 = 0x090;
    y0 = ( x0 * CONST_A ) / CONST_B;
}
```

A.

The value of y0 is not 0x0300 because the multiplication result is stored as "int", and an overflow occurs during the multiplication operation. You should cast x0 as "unsigned long" and make sure the multiplication results are stored as long. By using this work-around, y0 should become 0x0300.

```
#define  CONST_A  0x0400
#define  CONST_B  0x0c0

void main( void )
{
unsigned char   x0;
unsigned int    y0;

    x0 = 0x090;
    y0 = ( (unsigned long)x0 * CONST_A ) / CONST_B;
}
```

[Reference notes]
The cause of y0 becoming 0x055 when x0 is "unsigned char", is as follows:

1. In the equation "y0 = (x0 * CONST_A) / CONST_B", x0 is converted to "signed int" when "x0 * CONST_A" is executed. Therefore, the multiplication result is "int".
   **immediate (CONST_A, CONST_B) is treated as "signed int".
2. When dividing the multiplication result by CONST_B, the numerator (the multiplication result shown in item 1 above) is expanded to signed long (32-bit) due to the M16C mnemonic limitations.
   **The M16C MCUs have mnemonics for dividing long (32-bit) by short (16-bit).
3. The division result of item 2 is stored in y0. In item 1 of this procedure, the result of "unsigned char * signed int" is treated as "int". However, the multiplication result is 0x024000 and the upper first byte (0x020000) is cut off. Therefore, the division equation becomes "0x4000/0x0c0" and the result becomes 0x055.

   "y0 = (x0 * CONST_A) / CONST_B;" output code is as follows:

```
        mov.b   -2[FB],A0           ;  x0
        mov.w   A0,R0
        mul.w   #03ffH,R0
        exts.w  R0
        div.w   #00c8H
        mov.w   R0,-2[FB]   ;  y0
```

"y0 = ((unsigned long)x0 * CONST_A) / CONST_B;"output code is as follows:

```
        mov.b   -2[FB],R0L      ;  x0
        mov.b   #00H,R0H
        mulu.w  #03ffH,R0
        push.w  #0000H
        push.w  #00c8H
        .glb    __i4div
        jsr.a   __i4div
        add.b   #4H,SP
        mov.w   R0,-2[FB]       ;  y0
```

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Last Updated: August 25, 2000
Document Number: 01051272_e

Q.

When I declare the function (void_far) type, a 4-byte area is reserved for this. Why isn't a 3-byte area (0 - FFFFFFH) reserved?

A.

The compiler will always assign a 4-byte area for a function address because of the compiler specification. This is also applied to the address reservation of regular variables as well. When a function indirect-call is defined in a structure, and even this function is PACKed, the function will also hold 4 bytes.

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Last Updated: July 21, 2000
Document Number: 01051273_e

Q.

When NC30 compiles a signed variable left-shift statement, it uses a logical shift instruction instead of an arithmetic shift instruction. Why is that?

A.

In the M16C instruction set, there are two left-shift instructions: arithmetic shift instruction (SHA) and logical shift instruction (SHL). Both instructions bring the same result. Therefore, NC30 uses the "SHL" instruction.

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Last Updated: July 21, 2000
Document Number: 01051274_e

Q.

When I define an interrupt function with "#pragma INTERRUPT/B", the compiler does not generate any "fclrB" instruction for register switching. Why is that?

A.

The CPU automatically stores the flag register contents in the stack when an interrupt occurs during program execution and retrieves the contents from the stack when the CPU exits from the interrupt routine. Therefore, the compiler does not need to use the "fclrB" instruction.

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Last Updated: March 21, 2000
Document Number: 01051275_e

Q.

How are the following operations are handled in NC30?

1. Rounding direction of negative integer division "/" result.
2. Sign of negative integer remainder "%" result.
3. Does negative integer right-shift ">>" result make arithmetic shift (sign bit stuffing in MSB) or logical shift (0 stuffed in MSB)?

A.

1. The operation results of negative integer division "/" is rounded toward 0 (zero).

Equation	Results
(-10) / 3	-3
(-10) % 3	-1
10 / (-3)	-3
10 % (-3)	1
(-10) / (-3)	3
(-10) % (-3)	-1

2. The sign of negative integer remainder "%" operation result is set equal to the dividend sign.

Equation	Results
(-10) % 3	-1
10 % (-3)	1
(-10) % (-3)	-1

   (NOTE) If you specify the option -fround_under_div(-fRUD), it is set equal to the divisor sign.

3. Negative integer right-shift ">>" is treated as an arithmetic shift. Therefore, MSB is stuffed with sign bits.

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Last Updated: March 21, 2000
Document Number: 01051276_e

Q.

In the example program, why does the right side of the equation [aaa = (signed long)(BBB << CCC);] become 0x0000f000? When I use VISUAL C++, it becomes 0x0ffff000.

Example program	Compiled assembly code

`#define BBB (unsigned short)0xffff`
`#define CCC (unsigned char)12`
 	
`signed long aaa;`
 	
`test( void )`
`{`
`aaa = (signed long)( BBB << CCC );`
`}`
	`_test:`
	`mov.w #0f000H,_aaa`
	`mov.w #00000H,_aaa+2`
	`rts`

A.

The compiler processes the equation in the following order:

1. Convert BBB to int type
   (If the original can be expressed in int, signed type int is used.)
   (If the original can not be expressed in int, unsigned int (or bigger) is used.)
2. Shift the intermediate data using CCC.
3. Convert the data to signed long type, then store the data to aaa.

However, NC30 handles an int type variable as 16-bit data. Therefore, NC30 processes the equation [aaa = (signed long)(BBB << CCC);] in the following ways:

1. 0xffff -> 0xffff (the data can not be expressed with int type, so it is converted to unsigned int)
2. 0xffff <<12 -> 0xf000
3. 0xf000 is unsigned type. (signed long) cast processes the data to 0x0000f000 -> aaa

Therefore, the resulting value becomes 0x0000f000.

If you want to set the result as 0x0ffff000 by using NC30, you must cast variable BBB instead of casting the sifted result to long type: aaa = (signed long)(BBB << CCC);.

```
#define BBB     (unsigned short)0xffff
#define CCC     (unsigned char)12

signed long aaa;

test( void )
{
    aaa = (signed long)BBB<<CCC;
}
```

Compiled assembler codes for the above results are as follows:

```
;## # C_SRC :       aaa =  (signed long)BBB << CCC;
        mov.w    #0f000H,_aaa
        mov.w    #00fffH,_aaa+2
```

(For reference)

VISUALC++ treats int type as 32-bits. Therefore, VISUAL C++ processes this equation [aaa = (signed long)(BBB << CCC);] as follows:

1. 0xffff -> 0x0000ffff
2. 0x0000ffff <<12 -> 0x0ffff000
3. 0x0ffff000 ->aaa

The result is 0x0ffff000.

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Document Number: 01051277_e

Q.

When compiling with the NC30 V.3.00 (non-optimized), the code size is sometimes larger than in the NC30 V.2.00. Why?

A.

Some of the processes which used to be executed by default in the NC30 V.3.00 have now been modified and are executed when the optimization option are specified. Therefore, when the optimization option is not specified, the code size may be larger.

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Last Updated: July 21, 2000
Document Number: 01051278_e

Q.

I bought the NC30WA package. I was able to install NC30 properly with the included license ID, but I could not install AS30 with the same ID. Do I need to obtain a separate license ID for AS30, too?

A.

When you buy the NC30WA package (assembler and compiler with integrated debug environment) and install the NC30 compiler, the AS30 assembler is installed with it under directory "bin". The installer in the AS30 directory of the CD-ROM is for users who bought only the assembler package. However, we no longer sell the assembler package alone (AS308, AS30, and AS79).

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Last Updated: July 21, 2000
Document Number: 01051279_e

Q.

When I put "/*" in a comment starting with "//", the compiler generates an error. Can't I use this character combination?

[Example program]

```
main()
{
        //  /* abc
}
```

A.

The NC30 compiler processes a character string which is enclosed with "/*" and "*/", or starts from "//", as a comment. But when these control codes appears in the same statement, the compiler proceeds with "/* */" as the first priority code. Therefore, when the compiler finds code "/*" in the above statement, the compiler tries to find "*/" to close the comment. If the compiler cannot find the pair code, it will issue an error. Therefore, you have to use code "/*" as a pair with "/*". Please note that other ANSI compliant compilers treat this combination in the same way.

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Last Updated: December 20, 2000
Document Number: 01051280_e

Q.

Which registers are stored in the stack when calling a function?

A.

Only registers that will be referenced after the function are stored in the stack.

[Example] (when referencing Register R1 after calling the function)

```
    mov.w   R1,_a
    mov.w   R1,-4[FB]      ; Register R1 is stored in the stack.
    jsr     _func
    mov.w   -4[FB],R1      ; Register R1 is returned.
    cmp.w   #10,R1         ; Register R1 is referenced after the function is called.
      :
```

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Last Updated: July 21, 2000
Document Number: 01051281_e

Q.

The NC30WA generates the "S8" record at the last row in the Motorola S-format file. What does this mean?

A.

The "S8" record at the last row indicates the end of the "S2" record. If there is an "S2" record, an "S8" record will always be output as well. The execution address is recorded in Rows 5 to 10 of the "S8" record. The execution address is specified by lmc30 command option -E (value 0 is recorded if no option is specified).

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Last Updated: July 21, 2000
Document Number: 01051282_e

Q.

The NC30WA compiler generates the "S0" record at the top row in the Motorola S-format file. But a PROM writer does not seem to use this record. What is this record for?

A.

The "S0" record is for the comment field record. The NC30WA compiler reserves this record for future expansion. The lmc30 linker records "S0030000FC" in the top row. Actually, the PROM writer does not use this record.

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Last Updated: July 21, 2000
Document Number: 01051283_e

Q.

When compiling with C compiler, how can I generate an assembler list file too?

A.

When you compile the source with assembler option -I, the compiler will generate the assembler list file. To specify this option when invoking the compiler, specify it in the following manner:

[NC30 Command Input Example]

```
>nc30 sample.c -as30 "-l"
```

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Last Updated: December 20, 2000
Document Number: 01051285_e

Q.

I get the following error when I compile my program.

nc30:No such file or directory

I have set the environment variables as follows. Is there any other possible cause?

```
SET BIN30=C:\MTOOL\BIN
SET LIB30=C:\MTOOL\LIB30
SET INC30=C:\MTOOL\INC30
SET TMP30=C:\MTOOL\TMP
```

A.

The directory you have specified in the environment variables may not actually exist. In particular, the directory specified in environment variable TMP30 may not exist, resulting in this error. You should also check the 'permission' (the TMP30 may be set for 'write-inhibit') of the directory specified in the environment variables.

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Document Number: 01051287_e

Q.

It takes so long to compile my program in Windows 3.1, DOS version (IBE). Is there any way to speed up the process?

A.

The compiler takes extra time due to insufficient reserved memory. You can speed it up by setting the environmental variables to EXESW. Only a maximum of 2M bytes are reserved as memory when not set to EXESW. (This issue does not affect Windows95.)

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FAQs

32-bit M32R Family

August 20, 2004

MM (Jan. 7, 2003)	Maskfile Converter MM
HEW (Aug. 20, 2004) UP	Integrated Development Environment (attached to M3T-CC32R) "**H**igh-performance **E**mbedded **W**orkshop"
TM (Aug. 5, 2004)	Integrated Development Environment (attached to M3T-CC32R)
SQMlint (June 21, 2004)	MISRA C Rule Checker
M3T-CC32R (June 7, 2004)	C Compiler Package (with as32R, HEW, TM, and M3T-PD32RSIM)
M3T-MR32R (Apr. 5, 2001)	Real-time OS (Development kit M3T-MR32RK and Mass Production Contract M3T-MR32RS)
M3T-PD32RSIM (Feb. 20, 2002)	Simulator Debugger (attached to M3T-CC32R)
M3T-PD32R (Feb. 5, 2004)	Emulator Debugger for M32xxxTx-SDI-E system
M3T-PD32RM (Feb. 5, 2004)	Emulator Debugger for M32100T3-SDI-E and M32100T-EZ-E system
PDSDK COM Kit (Nov. 19, 2002)	Debugger Customization kit
M32xxxTx-SDI(-E) (Oct. 20, 2003)	Emulator for M32R/ECU, M32R/E(Discontinued), M32Rx/D(Discontinued) Series
Others (Sep. 5, 2003)	User Registration, License ID, Guarantee and Repair, etc.

Discontinued Product

M3T-PD32000 (Sep. 20, 2000)	Emulator Debugger for M32R/D Series (Discontinued Product)

M32R Family Index | FAQs Index

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Last Updated: August 25, 2000
Document Number: 01050967_e

Q.

Is the file code the accumulated value of the hexadecimal data? What is the difference between the file code and the previously used checksum value?

A.

The file code is the 32-bit length value of all the data in the mask file accumulated by 32-bit unsigned ASCII code. It is completely different from the EPROM checksum.

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Last Updated: June 20, 2001
Document Number: 01050968_e

Q.

When mask files are generated from two programs that contain just one differing table data, the file codes for both mask files are the same. How can I be sure that the mask files have been correctly generated?

A.

A unique file code is not necessarily generated for each mask file. The file code should be considered as just one piece of data for confirming the integrity of the mask file and the mask ROM confirmation form during the mask processing operation.
The file code is derived from the addition of all data recorded in the mask file, in 1-byte units of unsigned 32-bit length. In addition, a check sum is added to each data that is set in the mask file. Therefore, if a part of the contents of the set data differs, the value of the check sum for the differing data will also differ. Yet the file code itself may not indicate this difference in the contents of the set data.

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Last Updated: June 20, 2001
Document Number: 01050969_e

Q.

Is it OK that file codes created with different version MMs differ?

A.

Since Ver. 2.00.00, MM stores version information on the running MM in the mask file.
For this reason, the file code for mask files created with different version MMs will differ even if the same data is registered.
However, this version information has absolutely no effect whatsoever on the data to be masked, so there is no need to worry.
Also, ROM mask processing is performed correctly no matter version was used to create the mask file.

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Last Updated: June 20, 2001
Document Number: 01050970_e

Q.

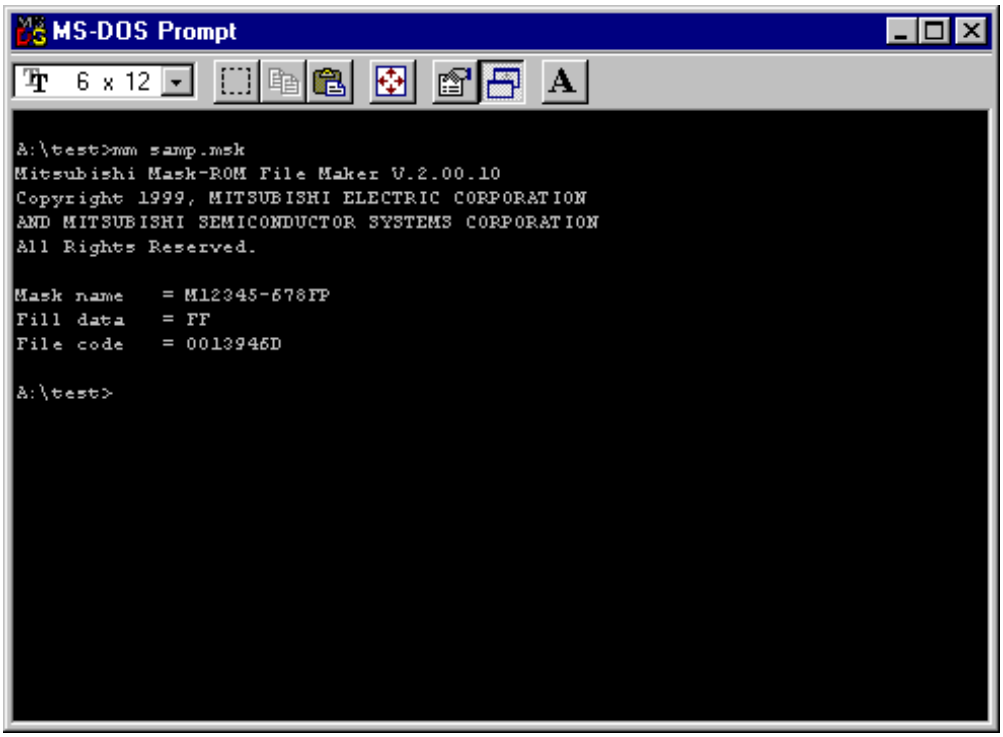
I forgot to write down the file code. How can I look it up?

A.

The file code should always be recorded on the mask ROM confirmation form.
However, even if you forgot to confirm the file code when executing the MM, if you still have the mask file, you should be able to confirm the file code using the following procedure.

- For V.3.00 or later:
  Got to the MM menu. Select [Action] -> [Show mask information...], and set the mask file to the corresponding mask information you need to confirm. The [Mask File Information Dialog] will open and the file code will be displayed.
  Also, if you still have the mask information file generated by the MM when you created the actual mask file, you can also open the mask information file in the MM and display it in the main window.
- For V.2.00.20 or earlier:
  Specify the name of the mask file you want to confirm when you turn on the MM.

  The following is an example of confirming the mask file code for a mask file named sampl.msk.



  As you can see in the above example, when MM is executed, the [part number], [mask option (when specified)], [data for setting the mask available area] and, lastly, the [file code] of the specified mask file will be displayed on the screen.

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Last Updated: June 20, 2001
Document Number: 01050971_e

Q.

Can I download the mask file to the debugger?

A.

The mask file is in the ROM mask-processing format. It cannot be used for debugging in a debugger or EPROM. To debug the hexadecimal data registered in the mask file, you will need to use a hexadecimal data file generated from an abstracted hexadecimal data file.

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Last Updated: August 25, 2000
Document Number: 01050972_e

Q.

How can I compare the contents of the OTP-version file and the **.MSK file I created with the Maskfile converter.

A.

Unfortunately, you cannot compare the mask file and the OTP file because the mask file includes not only the hexadecimal data to be written to the MASK ROM, but also various data essential for performing the ROM mask process.

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Last Updated: April 5, 2000
Document Number: 01050973_e

Q.

How is the reliability of the mask data secured for a floppy disk-based mask ROM order?
When I choose the EPROM-based mask order, I have to prepare 3 sets of EPROMs. But, when I choose the floppy disk-based mask order, I just need to prepare one data file.

A.

Mitsubishi Mask Data Reception Department can confirm the floppy disk data reliability for the mask ordering procedure with a single data file based on the following reasons:

- The mask file can be identified by matching the file name of the mask file in the floppy disk with the name specified on the Mask ROM confirmation form.
- The mask file includes not only the MCU binary data but also the mask generation configuration data, which allows us to confirm the configuration with the Mask ROM confirmation form.

In the EPROM-based mask order, the data we get from the EPROM is user binary data and its check-sum. It is possible to generate the same check-sum code from two or more different binary data. Therefore, multiple EPROMed binary data must be prepared to examine whether those binary files contain the same data.

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Last Updated: June 20, 2001
Document Number: 01050974_e

Q.

How can I confirm the hexadecimal data in the mask file?

A.

Confirm the hexadecimal data by generating a file using the hexadecimal data file abstraction function provided in the MM. The hexadecimal file extracted from the mask file (V.3.00 or later can also create Intel HEX format or extended Intel HEX format) will be in Motorola format. To verify that the hexadecimal data registered in the mask file is correct or not, write this extracted hexadecimal data to an EPROM MCU or Flash ROM MCU, or use a debugger to confirm proper operations on your own system. In addition, you can confirm the extracted hexadecimal data file with the contents of the original hexadecimal data file processed in the MM using the data conveyor function of an EPROM writer.

When confirming the data in the Renesas Original HEX format, please use the following procedure.

1. Generate a hexadecimal data file for the MM using a development tool.
2. Generate the mask file with the MM.
3. Extract the hexadecimal data file from the mask file with the MM.
4. Transfer the extracted hexadecimal data file to the EPROM writer.
5. Transfer the data in Intel HEX format to the PC from the EPROM writer.
6. Confirm the operations of the hexadecimal file (from step 5) on the debugger.

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Last Updated: June 20, 2001
Document Number: 01050975_e

Q.

Is a mask file different from an ordinary hexadecimal data file?

A.

A mask file is of a file format that registers information specifically for masking Renesas microcomputers.
It is similar to a Motorola S format file, but it cannot be downloaded and used on a debugger. Also, do not edit it with an editor.
Editing will alter the mask file content and will prevent the microcomputer from being masked correctly.

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Last Updated: June 20, 2001
Document Number: 01050976_e

Q.

I can't find the mask file.

A.

The mask file is generated in the directory in which the hexadecimal data file specified by the MM is recorded.
For Versions 3.00 or later, this directory will be the same as the directory in which the hexadecimal data file is specified as the program file.
For Versions 2.00.20 or earlier, if the hexadecimal data file specified by the MM includes the directory name, as below, the mask file will have been generated in that directory.

```
PROG:C:\WORK\FINAL.HEX
```

Please check the directory in which the hexadecimal file is registered.

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Last Updated: June 20, 2001
Document Number: 01050977_e

Q.

I want to specify the command prompt input in lower-case letters and the part number in upper-case letters, using MM for the command type. It is acceptable to mix characters like this?

A.

MM will register the part number in the mask file in upper-case data. When the number is in the lower-case, MM will automatically convert it to upper-case letters and register it in the mask file. Upper-case letters will be registered as is. In other words, inputting the command prompt in lower case letters will not cause a problem, as the letters will be converted to the upper case automatically. For more details, please refer to the MM User's Manual, "Process for Generating a Mask File: Part Numbers".

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Last Updated: April 5, 2000
Document Number: 01050978_e

Q.

Even if I do not know the part number yet, can I ask Renesas to prepare the mask file generation?

A.

Please contact your Renesas Rep. or sales office for the ROM number.
We do not handle customer mask file generation as a regular procedure. It is customary for the mask file generation to be completed by the customer.

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Last Updated: April 5, 2000
Document Number: 01050979_e

Q.

When I send a mask ROM order on a floppy disk, do I have to input the MCU type data at a certain address with ASCII code?

A.

No. When a mask ROM order is received in floppy disk form, the MCU type name is input during the mask data generation. Therefore, you don't need to input the MCU type name.
In fact, if you do so, an error might occur in the ROM Mask generation process.

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Last Updated: May 12, 1999
Document Number: 01050980_e

Q.

Do I have to specify the product name in the data area?

A.

When creating mask data with an older EPROM, the product name had to be set in ASCII code in the specified EPROM area. However, with MM, mask name data is set in the mask file, therefore this data need not be set separately. Do not register product name data set by EPROM in the hexadecimal data file specified in the mask file.

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Last Updated: January 7, 2003
Document Number: 02122004_e

Q.

When I use an Intel HEX file created with IAR's development tool, I get a warning that there are multiple end records. How can I fix this?

A.

IAR's linker (XLINK) outputs double end records in INTEL HEX files in accordance to the contents of the option.
When using MM, specify the following IAR linker options.

- For Embedded Workbench
  In [Project Option Settings], go to the Linker (XLINK) specification option and select [End only with :00000001FF] as the [Format variant] output file option.
- For Command Line
  Select the [-Y0] option when starting up the linker (XLINK)

By specifying the above selections, the end record output from the Intel HEX file will be [:00000001FF]. This will prevent the "multiple end records" warning from being generated when using Intel HEX files with MM.

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Last Updated: December 20, 2002
Document Number: 02120504_e

Q.

When I use MM to process an Intel HEX file that was created with a third-party cross tool, I get an error.

A.

An unrelated record was probably included in the Intel HEX file created with a third-party cross tool when the mask data was created. When using MM, please use the type of Intel HEX file that can be processed by MM or use a Motorola S format file.

For more details on what type of files can be processed by MM, please refer to "Appendix A: Hexadecimal Data File Formats that MM Inputs" in the MM Users Manual.

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Last Updated: July 5, 2002
Document Number: 02062001_e

Q.

I get an error when I specify my program file (hexadecimal file) with the MM Create Mask File Wizard. What's the problem?

A.

Make sure there isn't a space, tab or kanji character in the program file name or in the name of the directory in which the program file is located. This type of code in a program file name or directory name will cause an error.
Please remove this code from a program file name or directory name.

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Last Updated: April 22, 2002
Document Number: 01080602_e

Q.

I can not select extension ".hfd" (output file of the OSD font editor) with MM V.3.00 Release 1. Please let me know how to do it.

A.

V.3.00 Release 2 or later versions now have this feature (selecting .hfd extension).
Please download the newest version.

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Last Updated: October 5, 2000
Document Number: 01050981_e

Q.

Is it possible to create a mask file from a HEX file, regardless of the assembler used, as long as the target MCU is the 4500 Series and the object file is formatted with Intel HEX format in the following bit alignments:

- Lower 5 bits of hexadecimal word data are placed in addresses 0-3FFF
- Upper 5 bits of hexadecimal word data are placed in addresses 4000-7FFF

A.

Mask processing for 4500 Series MCUs will only work properly if the contents of the hexadecimal data file are the same as that of the Renesas 4-bit MCU Assembler ASM45. Accordingly, the HEX file contents must be the same as the contents of the HEX file below, as created with the ASM45.

1. Hexadecimal data is split between the upper and lower 5 bits, and output by the lower bits first, then the upper bits.
2. The lower 5 bits are placed in address 0000h to 3FFFh. The upper bits are placed in addresses 4000h to 7FFFh.
3. "1" is set to the upper 3 bits of each hexadecimal data.

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Last Updated: June 20, 2001
Document Number: 01050982_e

Q.

Can the mask process be performed even when several data share the same address?

A.

No. When the MM creates a mask file, it does not verify the contents of the program, so this kind of hexadecimal data file will be made into a mask file. However, when the ROM mask process is performed, an error will occur and the process will be terminated. When multiple data are assigned to the same address, an error will occur during the link.
On the other hand, the Renesas compilers and assemblers listed below will create the hexadecimal data file while issuing a warning.
ASM72, ASM45, SRA74, RASM77, NC77WA
If the linker issues a warning due to multiple data at one address, please do not use the generated hexadecimal data file to make a mask file.

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Last Updated: October 5, 2000
Document Number: 01050983_e

Q.

Is it possible to create a mask file from an object file that was created using a partner assembler in Intel HEX format?

A.

MM can handle the following types of file formats.

1. Intel HEX format
2. Expanded Intel HEX format
3. Renesas Original HEX format
4. Motorola S1, S2 and S3 formats

Therefore, a mask file can be created as long as the assembler you are using can output in one of the above formats.

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Last Updated: June 20, 2001
Document Number: 01050984_e

Q.

Does the MM determine the end record number for Intel HEX format files (the end record is determined as one line)?

A.

The end record means the 01 record in the 8th and 9th column from the left. The MM confirms that there is not data after the end record of the hexadecimal file.
In Version 2.00.20 or earlier, multiple end records will cause an error.
In Version 3.00 or later, multiple end records will generate a warning. Once the user has confirmed that there are no problems with the specified hexadecimal data file, any records that still exist after the initial end record will be ignored when generating the mask file.

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Last Updated: June 20, 2001
Document Number: 01050985_e

Q.

Can I generate an Intel HEX file with the MM?

A.

Hexadecimal data in Intel HEX format and expanded Intel HEX format can be extracted from the mask file in Version 3.00 or later.

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Last Updated: August 25, 2000
Document Number: 01050986_e

Q.

What record types does MM generate from the mask file in the Motorola S format?

A.

MM generates the following records: S1, S2, S3, S7, S8, and S9.
However, when the specified hexadecimal data file is Motorola S format and includes an S0 record, MM generates the S0 record in the mask file as well.

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Last Updated: August 25, 2000
Document Number: 01050987_e

Q.

I want to upload the hexadecimal data from the ROM writer to my PC and then generate mask data from the hexadecimal data by using MM. Is it possible?

A.

A hexadecimal data file to be processed by MM must be directly generated by the development system. The hexadecimal data uploaded to your PC from the ROM programmer may include unnecessary data. You will not be able to correctly generate mask data using such a file.

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Last Updated: June 20, 2001
Document Number: 01050988_e

Q.

Are there restrictions on hexadecimal data file names?

A.

With MM, file names which conform to the OS being used can be processed.
However, mask file names are written in 8 or 3 characters long, therefore it is necessary to rename any file which does not fit this condition.
MM adds the .MSK extension to the program file name and to the hexadecimal data file name specified with the PROG: identifier.
Therefore, if the program file name and the hexadecimal data file name specified with the PROG: identifier is 8 or 3 characters long, the mask file will have to be renamed.

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Last Updated: May 12, 1999
Document Number: 01050989_e

Q.

Does MM register incorrect hexadecimal data in mask files?

A.

With MM, immediately after a mask file has been created, data is checked to see hexadecimal data registered in the mask file it created matches the hexadecimal data file originally specified.
If unmatching data is detected, an error message is displayed.
Accordingly, with MM, if the mask file is created without any error message being displayed, then the data comparison check ended successfully as well.
With MM, sampled mask data can be checked using the hexadecimal data sample feature, therefore it is possible to compare mask file content.

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Last Updated: May 12, 1999
Document Number: 01050990_e

Q.

Does MM manipulate hexadecimal data files?

A.

MM only converts the specified hexadecimal data file into Motorola S format and registers it in a mask file.
It does not manipulate the data in the hexadecimal data file at all.
In fact, when the specified hexadecimal data file is already in Motorola S format, the mask file is set without any manipulation whatsoever. Accordingly, if incorrect data (i.e.: RAM area data, etc.) is registered in the hexadecimal data file to be masked, it will be registered unchanged in the mask file.
In such case, an error will be detected when the mask file is inspected and you will have to create the mask file again. Check the hexadecimal data file contains the correct data beforehand.

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Last Updated: May 12, 1999
Document Number: 01050991_e

Q.

Does a hexadecimal data file require an offset as when working with an EPROM?

A.

Hexadecimal data files processed with MM use the real address of the microcomputer to be masked.
When masking with older EPROMs, it was necessary to assign an offset to the address in accordance with the EPROM product.
This is not necessary with MM.

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Last Updated: April 22, 2002
Document Number: 01080603_e

Q.

I am using MM V.3.00 Release 1 and I have specified the part number and use of the data for setting the mask available area in the MCU information registration. But I cannot input the data for setting the mask available area using the Create Mask File wizard.

A.

V.3.00 Release 2 or later versions now have no restrictions on this function.
Please download the newest version.

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Last Updated: August 25, 2000
Document Number: 01050992_e

Q.

I specified MM to write a certain data in a blank area of the mask file. But the hexadecimal data file extracted from the mask file doesn't seem to include the specified data. Why is that?

A.

MM does not write the specified data to a blank area in the MCU internal ROM area. MM will just hold the specified data in the mask file for filling in the blank area of the MCU internal ROM. The actual filling operation is performed at the ROM Mask processing stage.
Therefore, when extracting a hexadecimal data file from a mask file generated by MM, the specified data will not appear in that hexadecimal data file. The extracted file will be the same as what was input at the time of the mask file generation.

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Last Updated: July 21, 2000
Document Number: 01050993_e

Q.

I want to confirm the data which MM filled in the unused area of the mask file. Is it possible?

A.

No, it is not. You cannot see the data from the mask file before the mask is executed. We will provide you with the dump list of your mask file when we proceed with the mask generation. We recommend that you check the data with this dump list.

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Last Updated: June 20, 2001
Document Number: 01050994_e

Q.

What are the "mask option" set in the MM?

A.

"Mask option", indicates special functions that can be set when creating the ROM mask. These functions are not necessary for all types of MCUs.
Please refer to the Mask ROM Confirmation Form corresponding to the MCU you are using for more information concerning the mask option.

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Last Updated: June 20, 2001
Document Number: 01050995_e

Q.

Can't I execute the MM execute file in MS-DOS?

A.

No, the execute file for MM V.2.00.20 or earlier cannot be executed in MS-DOS. You will need to use Windows 95/98/Me or Windows NT/2000 Prompt (the DOS window).
MM V.3.00 or later must be executed on Windows 95/98/Me or Windows NT/2000.

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Last Updated: September 5, 2001
Document Number: 01082101_e

Q.

I am getting the error message "Data-file column exceed 255". How should I deal with it?

A.

This error message is displayed when a column in the mask information file (extension .mmd) exceeds 255 characters. If the path to the hexadecimal data file is too long, shorten it so that the column of the mask information file is within 255 characters.
For details concerning the Mask information file format, refer to MM User's Manual, Appendix C.

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Last Updated: September 5, 2001
Document Number: 01082102_e

Q.

I am getting the error message "Can't create Mask file". How should I deal with it?

A.

Either the directory in which the mask file is created is not write-enabled, or there isn't enough space on the hard disk. Please check both possibilities and take the appropriate measures.

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Last Updated: September 5, 2001
Document Number: 01082103_e

Q.

I am getting the error message "Can't create HEX file". How should I deal with it?

A.

Either the directory in which the hexadecimal file is created is not write-enabled, or there isn't enough space on the hard disk. Please check both possibilities and take the appropriate measures.

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Last Updated: September 5, 2001
Document Number: 01082104_e

Q.

I am getting the error message "Can't open file *filename*". How should I deal with it?

A.

This message means that the file specified as *filename* could not be opened. Please check the actual file name again and set the name to an existing file.
This error message is also displayed when a mask file is created with MM V.3.00 Release 1 and the following 2 conditions are met.

1. MM is executed on Windows Me/98/95.
2. The hexadecimal data file to be processed is located in a root directory such as C:\.

When using MM in Windows Me/98/95, locate the hexadecimal data file in a directory other than the root directory.

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Last Updated: September 5, 2001
Document Number: 01082105_e

Q.

I am getting the error message "Invalid Load Address". How should I deal with it?

A.

When extracting data from a mask file, you cannot extract hexadecimal data in an Intel HEX format under the following conditions.

1. When an S3 format record is included in the mask file.
2. When the address you are using in your program exceeds the 20-bit limit.

In these conditions, data must be extracted in the Motorola S format.
Please refer to Appendices A and B of the MM User's Manual for details concerning file formats.

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Last Updated: September 5, 2001
Document Number: 01082106_e

Q.

I am getting the error message "Illegal ROM Data file name". How should I deal with it?

A.

There are two possible reasons for this message.

1. There is a space in the path of the hexadecimal data file
   Spaces cannot be used in directory names or file names.
   (Example: "My Documents", "Program Files", etc.)
2. The mask file was made with only OSD font data which was set for the hexadecimal file.

When setting only OSD font data, make the hexadecimal data file so that FFh is set at more than 1 byte in the ROM area, then set it as a program file. Refer to Appendix A in the MM User's Manual for details on file formats.

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Last Updated: September 5, 2001
Document Number: 01082107_e

Q.

I am getting the error message "Illegal file format". How should I deal with it?

A.

This error message is displayed in the following cases:

1. When making a mask file
   The content of the hexadecimal data file is not a form that MM can work with.
2. When displaying mask information from a mask file
   There is an error in the mask file contents (the mask file is damaged).
3. When extracting hexadecimal data from a mask file
   There is an error in the mask file contents (the mask file is damaged).

If you receive this error message, refer to Appendices A and B of MM User's Manual for instructions on how to confirm the contents of the file.

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Last Updated: August 20, 2004
Document Number: 04072101_e

Q.

I am currently using NC8C V.5.30 Release 1.
When creating a project, do the default option settings include output of debug information?

A.

No, the default options for workspace creation do not include output of debug information. Please set the appropriate option according to the following procedure to output debug information.

1. Go to Menu [Options] -> [Renesas R8C Standard Toolchain...].
2. The Renesas R8C Standard Toolchain dialog box will be displayed.
3. Click the "C" tab.
4. Select "Object" from Category.
5. Check [-g] in the Debug options list.
6. Click the OK button.

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Last Updated: July 5, 2004
Document Number: 04062102_e

Q.

When I select Release as the build configuration, I get a build error, but when I select Debug, the program is compiled normally. Why does this happen?

A.

This happens because the options set for Debug and Release differ.

Concerning build configuration usage:

HEW creates two build configurations, Release and Debug. You can set different option patterns for each configuration, and switch between option patterns simply by switching build configurations.

* However, when HEW first creates a build configuration, the option patterns set for both configurations are the same.

Therefore, in response to the question, when changes are made to the option pattern settings of one configuration, HEW does not apply them to the other configuration.

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Last Updated: March 5, 2004
Document Number: 03122201_e

Q.

HEW3 builds the file I have opened in the editor, rather than the specified file (selected from the tree in the Project tab of the workspace window). What's the problem?

A.

If the focus is (the cursor is) on the file that was opened with the editor, this file will become the target of the build. That is because the build is usually performed immediately after editing the source file. When the editor is not the focus, the file selected from the tree in the Project tab of the workspace window will be the target for the build.

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Last Updated: December 22, 2003
Document Number: 03120505_e

Q.

If a compiler error occurs while I am executing a build, how can I stop the build?

A.

The HEW default values are set so that the build is not stopped even if an error occurs and the process is continued up to the link. Please set the following values in order to enable the build to be stopped when an error occurs.

1. In the menu, click [Tools] -> [Options...]. This displays the Options dialog.
2. Click the Build tab in the Option dialog. This displays the settings related to the build process.
3. Check [Stop build when number of errors exceeds:]. (Adjust the value in the textbox next to this selection box in order to set the number of errors for the stop-build conditions.)
4. Click the OK button to close the dialog.

To set the number of warnings as part of the stop-build conditions, check [Stop build when number of warnings exceeds:]. (Adjust the value in the textbox next to this selection box in order to set the number of warnings for the stop-build conditions.)

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Last Updated: December 22, 2003
Document Number: 03120502_e

Q.

I am trying to create a new project workspace using HEW, but nothing appears in the Project Type column, and I cannot create a workspace. What is the problem?

A.

Make sure you use the M3T-NC30WA installer to install the HEW that comes bundled with M3T-NC30WA. In addition, when installing the M3T-NC30WA with HEW on a PC that is already installed with an HEW environment, you will need to install the new HEW over the existing HEW environment.
If you still experience problems after taking these actions, you will need to go through [Toolchain Registration] in the sequence indicated below.

(1) Start up HEW.
(2) When the Welcome! dialog appears, click the cancel button.
(3) In the HEW menu, click [Tools] -> [Administration...]. This displays the Tools Administration dialog.
(4) Click the Register button in the Tool Administration dialog. This will display the Select HEW Registration File dialog.
(5) Move the files in the Select HEW Registration File dialog to the directory in which M3T-NC30WA is installed (default \MTOOL).
(6) Select nc30wa.hrf and click the selection button.
(7) After the screen returns to the Tool Administration dialog, click the OK button.

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Last Updated: December 22, 2003
Document Number: 03120501_e

Q.

I installed M3T-NC30WA, which includes HEW, on a PC that is already has installed with an HEW environment. However, even when I start-up the HEW program, M16C is not displayed as the toolchain.

A.

When installing HEW that comes bundled with M3T-NC30WA, make sure to install in the same directory that stores the existing HEW environment and overwrite that HEW. In addition, it is necessary to install the new HEW environment before installing M3T-NC30WA. Make sure you use the corresponding installer for the M3T-NC30WA compiler.

[For SHC and H8C Users]

For customers using SHC Ver. 7 or H8C Ver. 5, please install the M3T-NC30WA compiler after downloading the HEW revision for the latest version of the complier package, located at the URL indicated below.

- Latest version of compiler package for SH
- Latest version of compiler package for H8

If you still experience problems after taking these actions, you will need to go through [Toolchain Registration].

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Last Updated: May 10, 2004
Document Number: 03092205_e

Q.

How can I generate a Motorola S format file?

A.

To generate a Motorola S format file, use the following setup process.

1. From the menu, click [Options] -> [Build Phases...]. This opens the Build Phases dialog.

2. Click [Build Order] tab in the Build Phases dialog. This displays the Build phase order.

3. For M3T-NC30WA V.5.20 Release 1 : Select [M16C Stype Converter].
   For M3T-NC30WA V.5.30 Release 1 : Select [M16C Load Module Converter].
   For M3T-NC308WA V.5.20 Release 1: Select [M32C Load Module Converter].
   For M3T-NC8C V.5.30 Release 1 : Select [R8C Load Module Converter].
   For M3T-CC32R : Select [M32R Stype Converter].

4. Click the OK button to close the dialog.

5. From the menu, click [Options] -> [Renesas M16C Standard Toolchain...](*). This opens the Renesas M16C Standard Toolchain dialog.
   Note (*):
   For M3T-NC308WA, click [Renesas M32C Standard Toolchain...].
   For M3T-NC8C, click [Renesas R8C Standard Toolchain...].
   For M3T-CC32R, click [Renesas M32R Standard Toolchain...].

6. Click Lmc tab in the Renesas M16C Standard Toolchain dialog. This opens the Options Setting screen for the Load Module Converter.

7. Set the required options, and then click the OK button to close the dialog.

This completes the setup process. When building a file in the future, the load module converter will be executed automatically.

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Last Updated: September 22, 2003
Document Number: 03092202_e

Q.

How can the link order of a relocatable file be changed?

A.

Relocatable files are linked in the following order.

(1) Files which are registered in both the work space and the [Relocatable files] list are linked in order of the [Relocatable files] list.
(2) Files that are registered only in the workspace are linked in alphabetical order, according to file name.
(3) Files that are registered only in the [Relocatable files] list are linked in order of the list.

Please add a file to the [Relocatable files] list as needed.

Reference: How to link a start-up file first

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Last Updated: May 10, 2004
Document Number: 03092203_e

Q.

When HEW calls the linker, it sorts all relocatable files in alphabetic order. How I can make HEW link NCRT0 as the first file?

A.

Please set up HEW in the following procedure.

For M3T-NC30WA V.5.20 R1:

1. From the menu, click [Options] -> [Renesas M16C Standard Toolchain...].
   (This opens [Renesas M16C Standard Toolchain] dialog.)
2. Click [Link] tab.
3. Select [Input] from [Category:].
4. Select [Relocatable files] from [Show entries for:].
5. Click [Add] button.
   (This opens [Add Relocatable files] dialog.)
6. Select [Configuration directory] from [Relative to:].
7. Input [ncrt0.r30] to [File path:].
8. Click OK button in [Add Relocatable files] dialog.
9. Click OK button in [Renesas M16C Standard Toolchain] dialog.

This setup will ensure that "ncrt0.r30" is linked first.

For M3T-NC30WA V.5.30 R1, M3T-NC308WA V.5.20 R1 and M3T-NC8C V.5.30 R1:

- When a new project workspace is created, it will be automatically linked as the first file (head of the list) only if the startup program name is ncrt0.a30. To link the new workspace to the head position, please use the following option.
  1. From the menu, click [Options] -> [Renesas M16C Standard Toolchain...](*).
     (This opens [Renesas M16C Standard Toolchain] dialog.)
     Note (*):
     For M3T-NC308WA, click on [Renesas M32C Standard Toolchain...].
     For M3T-NC8C, click on [Renesas R8C Standard Toolchain...].
  2. Click [Link] tab.
  3. Select [Other] from [Category:].
     The automatic priority link option is "Start-up program is linked to a head."

- For startup programs other than those with filename ncrt0.a30, use the M3T-NC30WA V.5.20 R1 setup procedure.

Outline of [Relocatable files]

- When adding a file already registered into the workspace: "ncrt0.r30" is linked before the file already registered into the work space.
- When adding a file which is not registered into a workspace: "ncrt0.r30" is linked after the file already registered into the workspace.
- The added file is linked in the order of the list from the top.

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Last Updated: February 20, 2004
Document Number: 03120504_e

TM V.3.20, V.3.20A Internal Error

```
------------------------------------------------
<ERROR> Internal Error
D:\TM_V3\ProjectEditor\ProjectData\ProjectData.cpp(<line number>)
Please contact your nearest Renesas office or its distributor.
------------------------------------------------
```

If an internal error occurs in the format shown above, please confirm all of the following items.

- When the <Line Number> is 275, 284, 290, 311, 344, 352, 408, or 414:
  The project file has been damaged. Please re-create the file.

- When the <Line Number> is 374, 381, 387, 484, 493, or 600:
  The problem most likely is in the project file name or directory name. Make sure you are not using 2-byte code and space characters in either name. If the "read-only" is one of the attributes of the project file or working directory (including the intermediate path), please remove the read-only attribute.

- When the <Line Number> is 475:
  The compiler may not have been installed successfully. Please re-install the compiler. For extra security, re-install TM at the same time.

```
------------------------------------------------
Error No. 0010
Internal error.
Inside information can't be established.(Initialization data)
->Please contact your nearest Renesas office or its distributor.
------------------------------------------------
```

If the above error occurs in your system, please check the following items before contacting Renesas.

- Check the project file (extension 'tmi' or 'tmk') attributes to determine whether or not the file is read-only.
  -> If read-only, change the attributes so that the project file can be written to as well.

- Check to make sure there are no Japanese characters (2-byte code) or space characters used in the directory name (including the entire path) where the TM and compiler are installed.
  -> If such characters are detected, rename the directory so that no Japanese characters or spaces are used.

- Check to make sure there are no Japanese characters (2-byte code) or space characters used in the directory name where (including the entire path) the project file was created.
  -> If such characters are detected, rename the directory so that no Japanese characters or spaces are used.

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Last Updated: August 5, 2002
Document Number: 01051123_e

Q.

When I login to WindowsNT with something other than Administrator account and use TM V.3.00, I get Error No. 10. Why?

A.

When an account other than Administrator is used to with TM V.3.00 on WindowsNT, the WindowsNT generates Error No. 10, because this account does not have rights to access the complier information. This problem has been corrected in TM V.3.01 (upgrade date 9/1/00) and all later versions. We suggest you use TM V.3.01 or later.
Please upgrade to the latest TM version.

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Last Updated: August 5, 2002
Document Number: 01051124_e

Q.

When I install a directory name of 9 or more letters, TM does not run properly. If I install a file name of 8 letters or less, I have no problems.

A.

TM V.2.00 (upgrade date 3/16/99) and all later versions have been modified so that you can install long directory names. Please upgrade to the latest TM version. (Note: You can not use a directory name which includes any spaces.)

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Last Updated: August 5, 2002
Document Number: 01051125_e

Q.

When I try to create a new project in a certain directory, I get the following error. I tried to created the project in another directory and had no problems. Why?

> "Error No.0001 Internal error.
> An instance of a document could not be created.
> -> Please contact your nearest Renesas office or its distributor."

A.

This problem occurs when the attribute of the directory is read only.
This problem has been corrected in TM V.2.01 (upgrade date 7/16/99) and all later versions. We suggest you use TM V.2.01 or later.
Please upgrade to the latest TM version.

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Document Number: 01051126_e

Q.

- When reading a project created with TM V.1.10, the following question pops up:
  If this project has been created using MR (Renesas real-time OS), this version of TM allows you to integrate MR. Do you wish to use the MR integration function on TM?
  If I answer "YES", I get a message that says the OS package can't be located. Doesn't TM automatically recognize MR7700?
- I installed TM V.2.00 but I can't work on an SRA74 project which I originally created on TM V.1.12. I tried to create a new project, but TM V.2 only works with the M16C family and won't allow me to select any other MCUs.

A.

The directory which includes the TM setup program also includes a program named V2CVT.EXE. Please execute this program first. (V2CVT should be executed only after you quit TM.)

Concerning V2CVT:
This program fills in the missing configuration, allowing you to use tools which don't have the TM V.2 configuration. As you will see after executing V2CVT, it allows TM to follow the procedure specified in the Wizard Dialog, in the same manner as the install program.

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Last Updated: August 5, 2002
Document Number: 01051127_e

Q.

I created a project and quit TM without registering the source file. Then, when I tried to open the project again, it was refused. When I looked at the files with Explorer, I found that the project folder and the *.mtm file had been created. But, when I attempt to create another project under the same name, it is refused because a folder with that name already exists.
Is deleting the entire folder the only way to create a new project?

A.

TM V.1.11 and all later versions have been corrected so that the user can open a project file which has not yet been registered. We suggest you use TM V.1.11 or later.
Please upgrade to the latest TM version.

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Document Number: 01051129_e

Q.

When I open a project by TM and copy it with Explorer, for example, I get an error.

A.

TM puts a "lock" on the open project file, keeping it protected. When you need to copy a project file, you will need to close the project first, then execute the copy.

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Last Updated: August 5, 2002
Document Number: 01051130_e

Q.

After creating a project file by specifying a start-up file copy, then changing the start-up file name, I can't open the project file any more. Do I have any choice other than edit, or copy and paste, when I want to change the contents of the start-up file?

A.

This problem has been corrected in TM V.1.11 and all later versions. In addition, TM V.2.00 (upgrade date 3/16/99) will allow you to specify an existing start-up file when creating a new project. We suggest you use TM V.2.00 or later.
Please upgrade to the latest TM version.

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Document Number: 01051131_e

Q.

I can't change the directory name where the project is located after I have made a new project.

A.

To change a directory name, close the project file then modify the name.

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Document Number: 01051132_e

Q.

Can I copy an entire project directory (including project file, source file, header file, etc.) using another name? I want to use the project file and source, but modify the condition settings and source file, etc., then build a new project.

A.

No problem. The original project file will not be affected by a copy with different condition settings or a modified source file.

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Last Updated: August 5, 2002
Document Number: 01051133_e

Q.

I want to create a project in a directory that already exists.

A.

TM V.2.00 (upgrade date 3/16/99) and all later versions allow you to create a project in a directory that already exists. We suggest you use TM V.2.00 or later.
Please upgrade to the latest TM version.

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Last Updated: August 5, 2004
Document Number: 04070503_e

Q.

What characters cannot be used in file paths when using TM?

A.

The following characters cannot be used:

- The following symbols:
  & ( ) [ ] { } ^ = ; ! ' + , ` ~
- All Kanji (Chinese) characters
  (some kanji can be used without problems but, fundamentally, use of characters with 2-byte codes are not guaranteed.)
- Spaces

Note: As the specifications of the shells used in TM (Windows 98: command.com, Windows NT: cmd.exe) differ, conditions that cause character errors may differ according to the user's OS.

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Last Updated: April 04, 2003
Document Number: 03030502_e

Q.

Please explain how to modify the link sequence for the source file when using TM V.3.

A.

Using the following procedure to modify the link sequence.

1. Select "project name".cmd from the tree on the left-hand side in the project editor.
2. Open the command dialog by clicking on the following in the menu: [Project] -> [Edit Item] -> [Command].
3. Select the line you want to modify from the link command list displayed in the command dialog. Use the [Up] and [Down] buttons to move the line.

   Note: If you are using TM V.3.00 to V.3.11, use the [Edit] Button to modify the sequence so that [>] is the redirect signal for the first line of the command list, and [>>] is the signal for all other lines.
   For more details, refer to the MAEC Tool News "TM Precaution" issued on Dec. 1, 2001.
   The above procedure was fixed in TM Version 3.20.
4. After modifications are completed, click [OK] in the command dialog.

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Last Updated: August 5, 2002
Document Number: 01051134_e

Q.

When I alternate between TM and Mifes (editor), the source file registration is sometimes canceled. What can I do to prevent this?

A.

This problem has been corrected in TM V.1.11 and all later versions. We suggest you use TM V.1.11 or later.
Please upgrade to the latest TM version.

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Last Updated: August 5, 2002
Document Number: 01051135_e

Q.

When I am using WindowsNT, I can't register a source file from the Netware network drive to my project.

A.

TM V.1.11 and all later versions have been corrected so that you can register a file from the Netware network drive to your project.
We suggest you use TM V.1.11 or later.
Please upgrade to the latest TM version.

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Last Updated: August 5, 2002
Document Number: 01051136_e

Q.

When I add a comment to the .include line of the assembly language specifier, TM can't find the include file. Is this part of the specifications?

A.

This problem has been corrected in TM V.1.11 and all later versions. We suggest you use TM V.1.11 or later.
Please upgrade to the latest TM version.

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Document Number: 01051137_e

Q.

Does the source file extension for TW32R have to be an upper-case ".S"? Can I also use a lower-case ".s"?

A.

You can register an assembly source file using the ".S" or ".s" extension. In addition, in the assembler default option, the (-x assembler-with-cpp) option is specified in order to execute the C preprocessor. Therefore, you will need to change the option to "-x assembler" if you do not want the C preprocessor to be executed.

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Document Number: 01051138_e

Q.

Does the source file extension for TW32R have to be either ".c" or ".S" in order to register it in a project?

A.

Yes.
TM uses these extensions to understand which source file corresponds to which software tool. The information concerning these extensions is registered in the registry along with the tool information. Since TM operates by referencing this information, other extensions cannot be registered.

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Document Number: 01051139_e

Q.

Can I register more than one .c file when registering source files?

A.

Yes. If the source files are in one directory, you can use the following steps to register these files

- When selecting one block of files, specify files while pressing the shift key.
- When selecting individual files, specify files while pressing the control key.

Files located in different directories cannot be registered at the same time.

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Document Number: 01051140_e

Q.

Can I modify extensions?

A.

If you use the Makefile that TM automatically output, you cannot change the file extensions. TM uses these extensions to understand which source files corresponds to which software tool. You can modify the file extensions of your own Makefile, but TM won't accept these files properly in the Makefile, nor will it recognize the option settings, etc.

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Last Updated: October 19, 2001
Document Number: 01100501_e

Q.

In the TM option browser, when I use the lmc30 ID code check option -ID and set -ID#1234, both the ID file (.id) and the Motorola S format file (.mot) become "FF". It seems that when the ID is set in hexadecimal notation, the ID becomes "FF". What is the correct method for setting the ID in hexadecimal notation?

A.

When setting the ID in hexadecimal notation in the option browser, please use the following.

-ID\#1234

In versions TM V.3.00 and later, the GNU Make command is executed based on the make file (TMK file) generated with the project editor. Therefore, the numbers after "#" are regarded as a comment (This is the makefile spec.) and the specified "-ID#1234" is processed as "-ID". Accordingly, all the ID values become "FF". Please note that in TM V.2.xx, this must be set as "-ID#1234".

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Last Updated: August 5, 2002
Document Number: 01051141_e

Q.

How can I make the assembler list-file with the M16C compiler NC30WA?
I know I can make the file with the -as30 "-L" option when I'm compiling without TM, but the -as30 option is not specified in TM.

A.

TM V.2.00 (upgrade date 3/16/99) and all later versions have been modified so that you can use the -as30 option. We suggest you use TM V.2.00 or later.
Please upgrade to the latest TM version.

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Document Number: 01051142_e

Q.

Why are there certain options that I can't remove or add (-as30, etc.) when I'm setting compiler options for TM?

A.

These may be limitations caused by the integration of TM with the assembler and compiler. (This kind of limitation does not occur when the compiler and assembler are executed with their own command line option.)

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Document Number: 01051143_e

Q.

Can I make my own default compiler/assembler options when creating my project?

A.

No, you cannot.
However, you can use the option combinations you have set so far, since they are recorded in the log, using the following procedure.

1. Open the Option Setting Dialog in the BUILD tab of the Project Setting Dialog.
2. Click on [Load defined option] and the Load Option Dialog will open.
3. Select the option combination you want to use.
4. By setting the [Over Load] to ON, all other options, except for the one selected in this dialog, will be released. When the [Over Load] is set to OFF, the option selected in this dialog will be added to the default options.
5. Click on [OK] to close the dialog.

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Last Updated: August 5, 2002
Document Number: 01051144_e

Q.

I can't compile in TM when I specify many compiler (or assembler) options. Is there a limit to the number of commands I can use? The error says I must have less than 128 characters in my file name. But, when I eliminate a few options, I have no problems.

A.

This limitation concerning the number of characters in the command name has been eliminated in TM V.2.00 (upgrade date 3/16/99) and all later versions. We suggest you use TM V.2.00 or later.
Please upgrade to the latest TM version.

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Last Updated: March 20, 2001
Document Number: 01051145_e

Q.

When I build with TM, a double definition error occurs in an identical file. How can I prevent this error from occurring?

[Example of error]
ERROR NO.10: "NAME00" is multiple defined in .\TES.R74. others in TES.R74

A.

In terms of the above example, this error occurs due to the following situation:
When "TES.R74" is specified in the SRA74 (or RASM77) directive command ".OBJ", and the "TES.R74" source file is added to the TM project, TM automatically creates the process up through the link step. This results in duplicate links for TES.R74 and an error occurs at the label definition location.
When you are using TM, make sure you delete ".OBJ" from the source program.

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Last Updated: October 20, 1999
Document Number: 01051146_e

Q.

When the build operation starts, the PC accesses drive A (floppy disk) and continues to do so for more than 1 minute. Why?

A.

To avoid the program without removing the virus scan program:
This phenomena often depends on your virus scan program features and settings. When the program has a drive option for scan location settings, please dismount drive A. This configuration setting should take care of this problem.

Example: using McAfee VShield 3.1.0 H
Please open 'property' (VShield setting) and select 'scantag'. Then clear the 'disk scan' access item and complete the setting.

Please review the manual included with the virus check program for detailed instructions concerning the disk scan.

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Last Updated: August 5, 2002
Document Number: 01051147_e

Q.

When I execute Build or Rebuild from TM, I get the following message:

```
******** Executing...
C:\mtool\bin\MAKE.EXE: Interrupt/Exception caught (code = 0xc00000fd, addr= 0x4164e7)
******** Finish...
```

Of course, make.exe won't run and I can't Build or Rebuild.

A.

This problem occurs when [Cygwin32] is installed on the user's PC.
Probably you have a path set for Cygwin in your autoexec.bat or somewhere else.

This problem has been corrected in TM V.2.01 (upgrade date 7/16/99) and all later versions. We suggest you use TM V.2.01 or later.
Please upgrade to the latest TM version.

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Last Updated: August 5, 2002
Document Number: 01051148_e

Q.

When I use the following operations and execute a build, the "now rebuilding" message doesn't appear, even though I have changed the compiler options.

1. Change the build option, click on OK, and close the window.
2. Bring up the build option setting screen again, click OK without making any changes, and close the window.
3. Perform a Build.

How do I know that it is really rebuilding?

A.

This problem has been corrected in TM V.1.11 and all later versions. We suggest you use TM V.1.11 or later.
Please upgrade to the latest TM version.

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Last Updated: August 5, 2002
Document Number: 01051149_e

Q.

Can the stk30 utility included in the M16C compiler NC30WA be executed from TM? If so, how?

A.

TM V.2.00 (upgrade date 3/16/99) and all later versions allow you to use the stk30 utility as part of the build command. We suggest you use TM V.2.00 or later.
Please upgrade to the latest TM version.

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Document Number: 01051150_e

Q.

When I use M16C compiler NC30WA and use TM to build, I get an error during assemble because it can't find the include file in the same directory as the assembler source file.

A.

Please specify the include path in the AS30 options or the environment variables. To set the path select the BUILD tab in the Project Setting dialog.

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Document Number: 01051151_e

Q.

Can I modify the Makefile generated by TM?

A.

We do not recommend modifying the Makefile.
If you wish to do so, copy the Makefile under a different file name and make changes to that copied file. You can use the copied file in your project by registering it with the MAKEFILE tab in the Project Setting dialog. However, any TM operations executed after this change (source file additions, option changes, etc.) will not be reflected to the new Makefile.

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Document Number: 01051152_e

Q.

What is the renewal timing for the *.mak file generated by TM?

A.

Each time [compile specified file], [build], and [rebuild] are executed.

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Document Number: 01051153_e

Q.

When the contents of the header file are renewed, does TM only compile the source included in that file?

A.

Yes, only the source related to the renewed header file is compiled.

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Last Updated: September 20, 2001
Document Number: 01051154_e

Q.

What is the method for specifying the order of the module links in the TM environment?

A.

- Version 3.00 and later
  Change the link order in the Project Editor.

  [Procedure]

  (1) Select the [xxx.cmd] item from the "Dependencies" tree.

  (2) Select [Project] -> [Edit Item] -> [Command] in the menu. The command dialog will be displayed.

  (3) In the list, there will be several lines like the following.
  "$(ECHO)\$(OUTDIR)\relocatable file name >> $(ODINCMD)\$(LNLIST)"
  Select the line and change the order using the [↑] [↓] buttons.

- Version 2.01 and earlier
  Change the link order in the Project Setting Dialog.

  [Procedure]

  (1) Start the Project Setting Dialogue by selecting [Environment] -> [Project Setting] from the menu.

  (2) Select the LINK tab.

  (3) The link order is displayed by relocatable file names. Select the name of the file you want to move, then click on the Up and Down buttons to move the file. The files are linked from the top, in the order shown in the LINK tab.

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Last Updated: August 5, 2002
Document Number: 01051155_e

Q.

When I execute a build, I get the following error message:

```
make.exe: *** No rule to make target 'Output\XYZ.r30', needed by 'Output\sample.x30'.
Stop
```

When I checked the Makefile, there was no description to create object "XYZ.r30". When I try 'Scan All Dependencies' it indicates that Makefile is supposed to be updated, but nothing happened.

A.

This occurs when the file name as been modified from upper- to lower-case letters (and vice versa).
Example: Modifying your file name from "XYZ.c" to "wyz.c" and re-registering that source file in the project. When reviewing the Makefile, "XYZ.r30" is written in lower-case letters (xyz.r30).

This problem has been corrected in TM V.2.00 (upgrade date 3/16/99) and all later versions. We suggest you use TM V.2.00 or later.
Please upgrade to the latest TM version.

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Document Number: 01051156_e

Q.

I got a compile error during a build because the compiler can't find the 'source file' and 'include file' which are located in different directories.

A.

You will need to specify the 'include file' path by the compiler option or in the environment variables. The path can be specified with the BUILD tab in the Project Setting Dialog.

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Document Number: 01051157_e

Q.

I have a project file or source file in the networked file server, but I can't perform the build.

A.

If the clocks are different between the machine executing TM and the machine hosting the files, TM won't build your project. You should adjust the machine clocks and build again.

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Document Number: 01051158_e

Q.

When the compile result is properly output on the output window and I double click on an error message for a tag-jump, TM opens the editor window, but does not let me go to the corresponding source line. What is wrong? (I am using Mifes V3.0.)

A.

There is probably something missing in the configuration setup for Mifes. Please confirm the set information using the following procedure.

1. Select from Menu --> [Environment] --> [Tool] to open Tools Information Dialog. Click on EDIT tab.
2. Select Mifes, press the Modify button.
3. The configuration setup information for Mifes will be displayed in the Editor Tool Information Dialog.

Make sure that the [Parameter] in the Editor Tool Information Dialog is set follows:

```
Setting: Parameter  %F+%L
```

If it is not set as indicated above, input the parameter (%F+%L), press OK, and complete the setup procedure.

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Document Number: 01051159_e

Q.

When an error occurs in the results of my BUILD, I double-click on the line displaying the error in the output window, but the editor doesn't display the corresponding line.

A.

When using the Notepad as the editor, the editor doesn't have a tag-jump function to let the editor jump to the corresponding line. Please use an editor, such as Mifes, that has the proper tag-jump function.

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Last Updated: August 5, 2002
Document Number: 01051160_e

Q.

After I debug my project with TM, I save the project and quit the program. The next time I open the project and load it to your emulator, it tells me to build again, even though I haven't made any modifications since I saved it. Why?

A.

TM V.2.00 (upgrade date 3/16/99) and all later versions have been modified so that it no longer tells the user to build again if there haven't been any modifications made. We suggest you use TM V.2.00 or later.
Please upgrade to the latest TM version.

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Last Updated: August 5, 2002
Document Number: 01051161_e

Q.

I want to specify the parameters for executing the debugger.

A.

TM V.2.00 (upgrade date 3/16/99) and all later versions allow you to specify the parameters for executing the debugger. We suggest you use TM V.2.00 or later.
Please upgrade to the latest TM version.

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Last Updated: August 5, 2002
Document Number: 01051162_e

Q.

When I want to use other tools with TM V.2.00 and I modify the current directory, I have no problems immediately after the modification, but, when I re-open the project, the current directory information has not been saved. To be specific, I want to change the current directory to "Working Directory", but whenever I re-open the project, it always goes back to "Directory that contains the execution file". Why?

A.

This problem has been corrected in TM V.2.01 (upgrade date 7/16/99) and all later versions. We suggest you use TM V.2.01 or later.
Please upgrade to the latest TM version.

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Document Number: 01051163_e

Q.

When I execute other tools by going from [Action] --> [Other] in the TM menu, I get the following message:

"Code Page 932 is not supported by this system."

Is this a problem? This message does not come up when I execute LMC30 in DOS window.

A.

When you execute the program in DOS window from TM in the Japanese development environment, the program is executed under the Japanese-version command.com code page. This error does not effect the lmc30 operation even when the error message related to the code page occurs. Also, please note that this problem does not occur in the English development environment.
The following procedure can be used to avoid this message:

1. Open autoexec.bat with the editor.
2. Add [loadhigh C:\WINDOWS\nlsfunc.exe C:\WINDOWS\country.sys] (This should be added near the first line, depending on the contents of autoexec.bat.)
3. Reboot your PC.

This procedure assumes that Windows95 was installed under [c:\windows (default)]. When Windows95 has been installed in a different directory, change the directory name accordingly.

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Document Number: 01051164_e

Q.

Can I use "%F" with Other Tools when specifying a parameter, such as a file name?

A.

No, you cannot specify "%F" when specifying a file name as the parameter. However, when you select a file in the File Tree by clicking the left button and executing Other Tools, that file will be recognized as the parameter.

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Document Number: 01051165_e

Q.

When I execute other tools by going from [Action] --> [Other] in the TM menu, I get the following message: Out of parameter limits.

A.

This condition occurs due to the Windows95 setup. You can avoid this message by setting the initial size of the environment variables to [AUTO] using the property of SYSTEM\CONAGENT.EXE.

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Last Updated: June 21, 2004
Document Number: 01072305_e

Q.

How do I create ROM programming data with TM?

A.

Execute the load module converter in the following manner.

1. Boot up TM, then start the ProjectEditor.
2. Select [Project] -> [Information] from the menu.
3. The Information Dialog will appear on the screen.
4. Click on the tool tab at the top in the dialog.
5. Select load module converter (ex. lmc30) from the items in the middle of the dialog.
   M3T-NC30WA: lmc30
   M3T-NC308WA: lmc308
   M3T-NC79WA: lmc79
   M3T-CC32R: lmc32R
6. Click on the OK button.

These steps will complete the setup for TM.
It will now be ready to rebuild.

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Last Updated: November 6, 2000
Document Number: 01051166_e

Q.

Can I use TM V.2.01 and NC308WA V.3.00 together?

A.

NC308WA V.3.00 Release 1 supports TM V.3.00 or later.
Any versions released earlier than TM V.3.00 cannot be used in combination with NC308WA V.3.00. Please upgrade to the latest TM version, which is available from our homepage on the online upgrade site.

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Last Updated: April 5, 2000
Document Number: 01051167_e

Q.

When I make the TM window smaller than the Output window, the Tree and View windows are both hidden. In this situation, how can I make the Tree, View, and Output windows smaller?

A.

You need to make those windows smaller before making the TM window smaller. You can not make them smaller if each window stays out of the TM window border.

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Last Updated: August 5, 2002
Document Number: 01051168_e

Q.

It seems that the latest TM version takes much longer to load or compile a project. Is this something that can't be avoided due to additional functions in upgraded versions?

A.

This problem has been corrected in TM V.2.01 (upgrade date 7/16/99) and all later versions. We suggest you use TM V.2.01 or later.
Please upgrade to the latest TM version.

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Last Updated: August 5, 2002
Document Number: 01051169_e

Q.

I can't quit TM V.1.00. I've tried pressing the X mark at the top-right of the screen or using ALT + F4, but they don't work. The only way to quit TM is to reset my PC or press Ctrl + Alt + Delete.

A.

This problem has been corrected in TM V.1.11 and all later versions. We suggest you use TM V.1.11 or later.
Please upgrade to the latest TM version.

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Last Updated: August 5, 2002
Document Number: 01051170_e

Q.

I want to change the TAB and FONT settings in the view window. If it is possible, I want to change them for each file type.
Also, can I bring the editor cursor position to the position I have already set in the view window as soon as I execute the editor from TM?

A.

TAB and FONT cannot be changed in the view window.
However, TM V.2.00 (upgrade date 3/16/99) and all later versions allow you to change the editor cursor position in relation to the view window cursor position. We suggest you use TM V.2.00 or later.
Please upgrade to the latest TM version.

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Document Number: 01051171_e

Q.

Does the File Tree actually create the Target, Source, and Header folders that are displayed in the tree?

A.

No, these folders are not actually created. As one of TM's GUI features, the File Tree categorizes and displays folders and files based on file type. However, this is not the actual file system.

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Document Number: 01051172_e

Q.

Can I make my source directory with the File Tree and manage my files through it?

A.

The TM does not manage the directory structure, so you can't do this.

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Document Number: 01051173_e

Q.

Can I create a new directory in the working directory and keep files (source file, header file) there? Also, will File Tree properly display them when I do this?

A.

Yes, you can make a new directory and store your source files. The files registered in the project will be classified as source file, include file, etc., then displayed in the TM "File Tree". Therefore, you can find the location of the source file by looking into the source file branch of the File Tree.

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Last Updated: June 21, 2004
Document Number: 04051002_e

Q.

When I describe enumerators for the left and right operands of the conditional operator ":" the return value is input as an enumerated variable, I get a report message regardless of using the same type.
Why does SQMlint output this message?

C source example:

```
 --------------------------
  enum E { A, B, C };

  void func(int i)
  {
      enum E e;
      e = (i == 0) ? A : B;
  }
 --------------------------
```

Message output:

```
  Rule 43 (Complaining) "information loss conversion (from 'signed int' to 'enum E')
  in assignment operation"

  Rule 29 (Complaining) "enum type object to which has not been assigned own
enumerator"
```

A.

When describing enumerators on the left and right side of the conditional operator ":", the conditional operator returns an int type value. Therefore, SQMlint judges the returned int type as different from the enumeration type, and therefore outputs a report message.
In this case, please ignore the report message.

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Last Updated: June 7, 2004
Document Number: 04051001_e

Q.

When I describe an enum type parameter for the prototype declaration and use an enumerator-type argument for the function call, I get the following report messages regardless of using the same type.
Why does SQMlint output these messages?

C source example:

```
----------------------
 enum E { A, B, C };
 void func1(enum E);

 void func2()
 {
    func1(A);
 }
----------------------
```

Message output:

```
 Rule 77 (Complaining) "argument type shall be compatible with prototype,
 the 1st argument"
```

A.

The enumerator type is int type.
As SQMlint compares the parameter with the corresponding argument strictly, it recognizes "enum E" type and "int" type differently, and therefore outputs the above messages.
In this case, please ignore the report messages.

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Last Updated: April 5, 2004
Document Number: 04030501_e

Q.

I want to output the results checked by SQMlint into report files while compiling several C language source files. How can I output the results of each source file in a separate report file?

A.

Please use the HEW or TM integrated development environment.

To use HEW

For M3T-NC30, M3T-NC308:
(1) Select Options, then Renesas M16C Standard Tool Chain Menu.
(2) Select MISRA C Rule Check in the C tab category in the dialog.
(3) Set "[-r] Report file name:" as follows
$(CONFIGDIR)\$(PROJECTNAME).csv

For M3T-CC32R:
(1) Select Options, then Renesas M32R Standard Tool Chain Menu.
(2) Select MISRA C Rule Check in the C tab category in the dialog.
(3) Set "[-misra_report] Report file name:" as follows
$(CONFIGDIR)\$(PROJECTNAME).csv

To use TM

For M3T-NC30, M3T-NC308:
(1) Select Project, then Option Browser Menu.
(2) Select CFLAGS and click on [Mod...]
(3) Select [MISRA-C Checking Options] in the Option Changes category.
(4) Check the -sqmlint option, and set the parameter string as follows
-misra all -r $*.csv

For M3T-CC32R:
(1) Select Project, then Option Browser Menu.
(2) Select CFLAGS and click on [Mod...]
(3) Select [MISRA-C Checking Options] in the Option Changes category.
(4) Check the -misra_report option, and set the parameter string as follows
$*.csv

[Note]
To input the command from the command line, specify the report file name for each file you compile.

```
-------------------------------------------------------------
>nc308 -c test.c -sq -sqmlint "-misra all -r test.csv"
-------------------------------------------------------------
```

In other words, compile one C source file at a time. When the command line is executed in the following manner, only the report results for test2.c are stored in the report.csv file.

```
-------------------------------------------------------------
>nc308 test1.c test2.c -sq -sqmlint "-misra all -r report.csv"
-------------------------------------------------------------
```

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Last Updated: October 20, 2003
Document Number: 03100601_e

Q.

When executing an automatic inspection, can I select only specific rules from the list of supported rules?

A.

Yes. SQMlint will allow you to specify rules for your inspection from the list of supported rules, as indicated in the selection methods below.

1. Perform SQMlint inspection using all supported rules.
2. Perform SQMlint inspection using only rules categorized as [REQUIRED] in MISRA C.
3. Perform SQMlint inspection using rules categorized as [REQUIRED] in MISRA C and specified [ADVISORY] rules.
4. Perform SQMlint inspection using only specified rules.

For a list of SQMlint supported rules and rule numbers, refer to [Table of MISRA C Rules Supported].

Rule selection methods are described in detail in SQMlint Users Manual.

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M3T-CC32R C Compiler Package

See Tool News for this product

Last Updated: June 7, 2004

- When describing a program without using the standard library functions, is there any problem with the size of the heap area being 0 (zero)? (June 7, 2004) NEW
- Will the variables declared in a C source program be assigned to the memory in the order originally declared? (July 22, 2003)
- When I execute a compile, the following error occurs. (Dec. 20, 2002)

  "internal error: object table overflow"
- When I use a type-name defined as void by typedef as an argument in a function declaration, the error "unnamed parameter" occurs. (Nov. 5, 2002)
- I want to use the DSP function on the MCU. Does Renesas's C Compiler M3T-CC32R for M32R family perform a compile to generate instructions for the DSP function? (July 22, 2002)
- When I specify the #pragma ADDRESS with a variable and then compile, the MapViewer doesn't display the variable definition that I specified. How can I get the definition displayed? (Feb. 20, 2002)
- I get the following warning when I assign the minimum value [-2147483648] as the long-type variable, even though this value is stated in the manual. What is the problem? (Sep. 20, 2001)

  "constant out of range due to unportable conversion"
- How can I access a bit field with CC32R? (Aug. 7, 2000)
- When I include several floating-point constants in an expression in C program, sometimes the constants are not combined to a constant during the compile? Why not? (Feb. 4, 2000)
- I get the following warning when I describe the '.RES pseudo-instruction' or '.DATA pseudo-instruction' in a code section in assembler. Why? (Feb. 4, 2000)

  warning: caution! there are some data in code section
- When I specify 'short data = OxFBEC;' in C program, I get the following warning. Why? (Feb. 4, 2000)

  warning: constant out of range due to unportable conversion
- When I describe 0xFF800000 and a fixed number in C program, it is processed as 'unsigned long'. Shouldn't it be 'long'? (Feb. 4, 2000)
- When I describe "LDI R0,#H'80", value H'80 is assumed to be an 8-bit immediate and a sign extended value H'FFFFFF80 is loaded to register R0. On the other hand, if the value is assumed to be 16-bit immediate, non-sign extended value H'00000080 is loaded. In which way does the assembler translate this description? (Feb. 4, 2000)
- When I display with the -V option in CC32R, a different version than the actual program's version is indicated. Why? (Feb. 4, 2000)
- In what order are the global variables and functions assigned to the memory during a link? (Feb. 4, 2000)
- Can I update my program from a CD-ROM? (Feb. 4, 2000)
- Can the functions and global variables be specified as 'near' or 'far' in the C source? (Feb. 4, 2000)
- I installed CC32R but TM wasn't installed with it. Why not? (Feb. 4, 2000)

- I got an error when I asked for CC32R help from TM. What could the problem be? (Feb. 4, 2000)
- Can I link two compiled objects in different memory models such as "small model" and "large model"? (Jan. 22, 2001)
- What will occur when I assemble a program, which a parallel processing description (||) is specified to a 4-byte instruction with -m32rx command option? (Feb. 4, 2000)
- I am using the read/write method to allocate variables to addresses as a method of controlling the ports on the I/O area in C language. However, only the last read/write is saved, all others are erased. Is there any way to work around this? (Feb. 4, 2000)
- When I describe a floating-point type of operation in C program, I get the following message during the link, indicating that _100_Faddd is undefined. Why? (Jan. 22, 2001)

  error: external symbol not defined: "__100_Faddd"
- When I use a large number of arrays in the C source, the compile is aborted.
- When I use the inline assembly function, the file optimization efficiency of the file including the inline assembly block drops greatly. Why?
- How does W95E (English) differ from W95J (Japanese)?
- The "can't link low-level function" error message comes up during the link.
- Is there a function which allows me to merge the C source and assembly source?
- Can I redirect the compiler error message when I use a PC?
- Can I perform a conditional assemble with the assembler?
- When I initialize the variables declared by char with Oxaa, I get the following warning, "constant out of range due to...". Why?
- When I compile, "xxx: can't execute" (a subordinate process can't be invoked.) message is displayed and the compile stops.
- CC32R V.2.00 introduces [Memory Models]. What are the differences between the compiled results of each model? (July 5, 2000)
- When I try to link an object file created with CC32R V.1.00 Release 3 or older releases, linking with CC32R V.1.00 Release 4 or newer releases, I get the "relocation out of range" error and the link cannot be completed.
  Are there some differences between older releases and CC32R V.1.00 Release 4 and newer ones which could cause this problem?
- Please describe the flow from startup to main function. (Jan. 22, 2001)
- Can CC32R V.1.00 and older versions be used with M32Rx?

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Last Updated: June 7, 2004
Document Number: 04042001_e

Q.

When describing a program without using the standard library functions, is there any problem with the size of the heap area being 0 (zero)?

A.

If you are not using the C standard function at all, there is no problem with the heap area size being 0 (zero).
However, the startup program (*) of the sample bundled with the M3T-CC32R requires use of the heap area because the user main function is called through the _c_main function when the standard library is initialized before the main function.
When setting the heap area size to 0, modify the section of the startup program that calls up c_main function so that it calls the main function.

(1) Using HEW
[Creating a new program]
Remove the check next to the [Use Standard I/O Library] in [New Project-3/6 - Setting the Contents of Files to be Generated].

[Project operations]
Go to [Option (O)], open [Renesas M32R Standard Toolchain], select the [Assembly] tab, and set the [Category] to [Source].
When the display changes, set [Show entries for] to [Defines]. The main function will be called when the value of __STANDARD_IO__ is set to 0. (_c_main function is called when this value is 1.)

(2) When using either the TM default or start.ms in the smp32R directory, please change the following two items as shown.

```
[Line 25]
  .import $_c_main              ->   .import $main

[Lines 76 and 77]
   SETH  R0, #HIGH($_c_main)     ->   SETH  R0,#HIGH($main)
   OR3   R0, R0, #LOW($_c_main)  ->   OR3   R0, R0, #LOW($main)
```

* When using HEW and TM, the sample startup program is set to the default values.

Notes:
standard functions that use the heap area are functions that require the low-level function _get_core. Standard functions that require _get_core are described in the M3T-CC32R Users Manual <C Compiler>, Chapter 11.1.1 The Low-level Library for the C Standard Library, "Table 11.3 C Standard Library vs Low-level Library".

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Last Updated: July 22, 2003
Document Number: 03062001_e

Q.

Will the variables declared in a C source program be assigned to the memory in the order originally declared?

A.

No., the order in which the variables are assigned in the memory will not necessarily be the order in which they were declared in the C source program. There is no way to predict in what order the variables will be assigned to the memory by examining the descriptive content of the program.

However, the following are a few ways to determine the assigned location of the variables when describing them in the source program.

- **Declare the variables as structure members:**
  The order of memory assignments of structure members will be the same as the order of the declarations.

  Example:
  ```
  ---------------------------------
     struct {
         int a;
         int b;
         int c;
     } order;
  ---------------------------------
  ```
  The structure members will be assigned to the memory in the following order: order.a, order.b, order.c

- **Create an assembly file from the C language file with the compiler, then edit the file:**
  Create a C language file describing only variable declarations. Then, specify the -S option (create an assembly source file) and compile the file. Open the newly created assembly source file and edit the file so that the order of the variable definitions is the order in which you want to assign them to memory.
  * Variables will be assigned to the memory in the order defined in the assembly file.

- **Define variables in Assembler:**
  Define the variables in the assembly source code.
  * The variables will be assigned to the memory in the order defined in the assembly source.

- **Specify the variable addresses with expansion function "#pragma ADDRESS":**
  When using this method, you can determine the order of the variables and the assigned addresses at the same time.

  Example:
  ```
  ---------------------------------
     #pragma ADDRESS var1 0x10000
     #pragma ADDRESS var2 0x20000
     char var1;
     static char var2;
     void  func(void)
     {
     }
  ---------------------------------
  ```
  For more details concerning the #pragma ADDRESS function, please refer to "A.3 #pragma Expansion Function" in the [M3T-CC32R User's Manual (C Compiler Version)].

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Last Updated: December 20, 2002
Document Number: 02120503_e

Q.

When I execute a compile, the following error occurs: "internal error: object table overflow".

A.

The object table overflow error often occurs when too many symbols (function names, variable names, etc.) are described within one C language file.
In this case, either reduce the number of symbols or specify the -XX option at the compile. A maximum of number of 10,000 symbols are acceptable without specifying the -XX option.

-XX option specification example: set the max. number of symbols to 20,000.

```
-------------------------------------
  % cc32R -c -XX=20000 file.c
-------------------------------------
```

[Note]

Be careful not to set an excessively large number as -XX. An excessive number of symbols may cause an "out of memory, cannot allocate object table" error to occur.

For more details, please refer to Section 3.2.1 Command Options in the M3T-CC32R User's Manual (C Compiler).

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Last Updated: November 5, 2002
Document Number: 02102102_e

Q.

When I use a type-name defined as void by typedef as an argument in a function declaration, the error "unnamed parameter" occurs.

A.

This restriction has already been fixed in the M3T-CC32R V.4.30 Release 00 and later.

M3T-CC32R restrictions state that a type-name defined as void by typedef cannot be used as an argument in a function declaration. (Please refer to the related release note for more details.)
However, you can use a #define macro as an argument in a function declaration instead of a typedef.

[Example:]

```
Before Change
        typedef void VOID;
        int func(VOID)
        {
              return 0;
        }
```

```
After Change
         #define VOID void     /* change VOID to #define macro */
         int func(VOID)
         {
              return 0;
         }
```

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Last Updated: July 22, 2002
Document Number: 02070502_e

Q.

I want to use the DSP function on the MCU. Does Renesas's C Compiler M3T-CC32R for M32R family perform a compile to generate instructions for the DSP function?

A.

No, you cannot generate instructions for the DSP function from the C arithmetic expression using M3T-CC32R.
To obtain instructions for the DSP function from the C source, use the asm function (in-line assembly function*) and add the DSP function instructions to the C source.

> * The asm function is an extended function of M3T-CC32R and allows you to add any assembly code (such as instructions for the DSP function) to the C source. For more details, please refer to the M3T-CC32R User's Manual [C Compiler].

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Last Updated: February 20, 2002
Document Number: 02020503_e

Q.

When I specify the #pragma ADDRESS with a variable and then compile, the MapViewer doesn't display the variable definition that I specified. How can I get the definition displayed?

A.

The M3T-CC32R defines the symbol for the variable specifying the #pragma ADDRESS using .EQU pseudo-instruction of an assembler. However, the default settings of the MapViewer will not display symbols defined by .EQU.
Use the following procedure to reset the MapViewer options in order to enable the display of the .EQU pseudo-instructions.

1. Open the following MapViewer.
   Option(O) -> MapView...(M)
2. In the [MapView] dialog, check the [.EQU List] on the "Right Map View:".
3. Click the OK button to enable the setting.

This operation allows you to add the [.EQU] item to the right side of the View, which will display the symbol corresponding to the variable symbol for the #pragma ADDRESS.
However, this setting will not be saved when you close the MapViewer so you will need to reset the option each time you use the MapViewer.

[Note]
The Inspector of TM is a handy reference for defining C-language variables.
In the Project Editor of TM, you can add the -g option (debug information valid) to cc32R and lnk32R. Then, push "Variable Definition Display" buttom in the Project bar of TM and you will find definition information for all variables.
For more details, refer to the TM Manual.

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Last Updated: September 20, 2001
Document Number: 01090501_e

Q.

I get the following warning when I assign the minimum value [-2147483648] as the long-type variable, even though this value is stated in the manual. What is the problem?

"constant out of range due to unportable conversion"

A.

The value stated in the manual, [-2147483648] is correct for the value for the long-type variable. However, according ANSI-C language specifications, the [2147483648] part is an unsigned long-type variable, and when this is signed, it goes out of the unsigned long-type range and a special conversion takes place. The compiler is issuing the warning concerning this point.

Normally, when stating the minimum value as the long-type variable, you should use the macro "LONG_MIN", which is defined in the ANSI-C standard header file [limits.h].

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Last Updated: August 7, 2000
Document Number: 01051080_e

Q.

How can I access a bit field with CC32R?

A.

Use one of the following methods to access a bit field.

1. Access with indirect half-words (see #1 below)
2. Macro Method: using macros for better code efficiency (see #2 below)

#1. Accessing bit fields by indirect half-word access method

```
/* bit field declaration */
typedef         union
{
        unsigned long    Word;   /* word data access use */
        struct
        {
                unsigned short  dummy7bit :7;   /* Extra (fixed to 0) */
                unsigned short  b8  :1;         /* bit No.8 */
                unsigned short  b7  :1;         /* bit No.7 */
                unsigned short  b6  :1;         /* bit No.6 */
                unsigned short  b5  :1;         /* bit No.5 */
                unsigned short  b4  :1;         /* bit No.4 */
                unsigned short  b3  :1;         /* bit No.3 */
                unsigned short  b2  :1;         /* bit No.2 */
                unsigned short  b1  :1;         /* bit No.1 */
                unsigned short  b0  :1;         /* bit No.0 */
        } Bit;
} TypeP1;

/* address declaration */
#define io_P1   (*(volatile TypeP1 *)0x00800100)

/* example function for accessing bit field indirectly */
void
foo1()
{
        TypeP1  work;

     /* write to bit No. 8 */
        work.Word = io_P1.Word; /* to read out half-word */
        work.Bit.b8 = 0;
        io_P1.Word = work.Word; /* to write in half-word */

     /* write to bit No. 5 */
        work.Word = io_P1.Word; /* to read out half-word */
        work.Bit.b5 = 0;
        io_P1.Word = work.Word; /* to write in half-word */
}
```

#2. Using a macro

```
/* address declaration */
#define io_P2   (*(volatile unsigned short *) 0x00800200)

/* access to each bit (write 0 to extra bit) */
#define SET_P2_B5(x)    (io_P2=(io_P2 & 0x03DF)|(x)<<5)
#define SET_P2_B8(x)    (io_P2=(io_P2 & 0x02FF)|(x)<<8)


/* example function for accessing bit field with macro */
void
foo2()
{
     /* write 0 to bit No. 8 */
        SET_P2_B8(0);

     /* write 0 to bit No. 5 */
        SET_P2_B5(0);
}
```

[Reference]
CC32R does not generate a code for accessing the bit field with a specific size (half-word, etc.). It automatically accesses the bit field with the minimum size.

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Last Updated: February 4, 2000
Document Number: 01051081_e

Q.

When I include several floating-point constants in an expression in C program, sometimes the constants are not combined to a constant during the compile? Why not?

A.

The compiler tries to determine whether the constant expression can be replaced by a constant according to the arithmetic operation order. In the floating decimal operation, the deviation may change due to rounding, therefore the compiler can not change the order of the operations on its own.
For example, if deg is the int form variable, the expression deg * 3.14/180 can not be changed to constant deg * 3.14 and, as a result, the instruction for this operation is generated (in other words, it can not be replaced by a constant). On the other hand, an expression like 3.14/180 * deg can become constant 3.14/180, and the operation is executed and the expression is replaced by a constant.

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Last Updated: February 4, 2000
Document Number: 01051082_e

Q.

I get the following warning when I describe the '.RES pseudo-instruction' or '.DATA pseudo-instruction' in a code section in assembler. Why?

warning: caution! there are some data in code section

A.

In M32R Family CPU cores, the assignment of data immediately after 16 bits length instruction is reserved. Assembler issues this warning for the user's reference whenever there is data (or an open area) in the code section. We recommend data-describing the instructions are written in the data section.
You can also avoid this warning by adding the -warn_suppress_code_ data option to assembler.

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Last Updated: February 4, 2000
Document Number: 01051083_e

Q.

When I specify 'short data = OxFBEC;' in C program, I get the following warning. Why?

warning: constant out of range due to unportable conversion

A.

This warning is issued because 0xFBEC is out of the short (= signed short) range (-0x8000~0~0x7fff).
Please specify 'unsigned short'.

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Last Updated: February 4, 2000
Document Number: 01051084_e

Q.

When I describe 0xFF800000 and a fixed number in C program, it is processed as 'unsigned long'. Shouldn't it be 'long'?

A.

The range for signed long (32-bit signed integer) is -0x80000000~ 0~0x7fffffff. Any value larger than this will be treated as an unsigned integer.

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Last Updated: February 4, 2000
Document Number: 01051085_e

Q.

When I describe "LDI R0,#H'80", value H'80 is assumed to be an 8-bit immediate and a sign extended value H'FFFFFF80 is loaded to register R0. On the other hand, if the value is assumed to be 16-bit immediate, non-sign extended value H'00000080 is loaded.
In which way does the assembler translate this description?

A.

LDI instruction can specify the sign extension. The range of the 8-bit sign immediate is -H'80~0~H'7F. Therefore, H'80 is not within the range and the extension is assumed to be 16 bits.
The following list shows typical assembler expressions and the values to be loaded to R0 for execution.

```
Instruction code    Assembler expression     R0 load value
                     .....
90F0FF00            LDI R0,#-H'100           0xFFFFFF00
90F0FF01            LDI R0,#-H'FF            0xFFFFFF01
                     .....
90F0FF7F            LDI R0,#-H'81            0xFFFFFF7F
6080                LDI R0,#-H'80            0xFFFFFF80
                     .....
60FF                LDI R0,#-H'01            0xFFFFFFFF
6000                LDI R0,#0                0
6001                LDI R0,#H'01             0x00000001
                     .....
607F                LDI R0,#H'7F             0x0000007F
90F00080            LDI R0,#H'80             0x00000080
                     .....
90F000FF            LDI R0,#H'FF             0x000000FF
90F00100            LDI R0,#H'100            0x00000100
                     .....
```

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Last Updated: February 4, 2000
Document Number: 01051086_e

Q.

When I display with the -V option in CC32R, a different version than the actual program's version is indicated. Why?

A.

"cc32R -- C compile driver -- Ver. 1.04.00" is the display for compile driver version cc32R.exe. (EWS version = cc32R). It differs from the package version itself. The package version is displayed as V.X.XX Release X in the first line after executing cc32R -V. When contacting us with questions concerning cc32R -V, please refer to the package version number.

```
                                    | Package Version Number
% cc32R -V                          V
CC32R Compiler for M32R Family V.2.00 Release 1
Copyright 1995-1999 MITSUBISHI ELECTRIC CORPORATION
AND MITSUBISHI ELECTRIC SEMICONDUCTOR SYSTEMS CORPORATION
All Rights Reserved.

                                    | Driver Version Number
                                    V
cc32R -- C compile driver -- Ver. 1.04.00
... (list abbreviated) ...
```

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Last Updated: February 4, 2000
Document Number: 01051087_e

Q.

In what order are the global variables and functions assigned to the memory during a link?

A.

The guidelines for memory assignments during a link are complicated due to the linking order of objects (~.mo) and the specifying order of libraries. For reference purposes, we offer the following operation outline for the current version.

- Guideline for Compiler:
  In each section, variables and functions are grouped in order of size (1, 2, 4 or larger than 4).
  If there are 2 variables of the same size, the order is determined according to the contents of the compiler process.

- Guideline For Assembler:
  Same conditions as described in the assembler source.

- Guideline For Link:
  First, functions and variables are grouped into sections, sections are assigned according to specifications, such as -SEC. (If there is no specification indicated, sections are grouped according to the order they were received in.)

  Each section is assigned internally as follows:
  - Library: in order of object detection
  - Multiple objects specified in command line: in order of object specified for being linked (~.mo file)
  - Single object file: assignment order according to variable appearance

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Last Updated: February 4, 2000
Document Number: 01051088_e

Q.

Can I update my program from a CD-ROM?

A.

Yes, the CD-ROM version updates are available for sale from Renesas sales office or distributor.

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Last Updated: February 4, 2000
Document Number: 01051089_e

Q.

Can the functions and global variables be specified as 'near' or 'far' in the C source?

A.

No, they can not.

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Last Updated: February 4, 2000
Document Number: 01051090_e

Q.

I installed CC32R but TM wasn't installed with it. Why not?

A.

TM is included in the CC32R package (version 2.00 and higher) but TM's installer is independent of CC32R's installer. You need to do an install operation for TM independently of the CC32R installation.

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Last Updated: February 4, 2000
Document Number: 01051091_e

Q.

I got an error when I asked for CC32R help from TM. What could the problem be?

A.

Your install destination directory name may include a space somewhere, such as [Program Files]. CC32R does not support this kind of directory name. If this is the case, you will need to perform an "uninstall", change the destination directory, and reinstall the program.

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Last Updated: January 22, 2001
Document Number: 01051092_e

Q.

Can I link two compiled objects in different memory models such as "small model" and "large model"?

A.

Yes. Make sure you select the large model library (m32RcRL.lib) when using the standard library.

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Last Updated: February 4, 2000
Document Number: 01051093_e

Q.

What will occur when I assemble a program, which a parallel processing description (||) is specified to a 4-byte instruction with -m32rx command option?

A.

You will get the following message error.

error: invalid parallel category

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Last Updated: February 4, 2000
Document Number: 01051094_e

Q.

I am using the read/write method to allocate variables to addresses as a method of controlling the ports on the I/O area in C language. However, only the last read/write is saved, all others are erased. Is there any way to work around this?

A.

This is due to the affects of the compiler optimization. We suggest making the variable a volatile declaration. The volatile declaration will guarantee the read/write to each variable and is also valid for the area specified by the pointer.
However, the optimization may modify the volatile area accessing size and the read/write order of multiple volatile variable that are written in one sentence.Therefore, you should carefully trace the behavior of the codeoutput from the compiler.
If you need to include precise details of the read/write order or access size in one line, we suggest you describe it directly in assembly language or use an asm function.

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Last Updated: January 22, 2001
Document Number: 01051095_e

Q.

When I describe a floating-point type of operation in C program, I get the following message during the link, indicating that _100_Faddd is undefined. Why?

error: external symbol not defined: "__100_Faddd"

A.

When using a floating-point operation, you should link to the standard library (m32RcR.lib etc), as CC32R uses a function call to perform the floating-point operation.
If you are linking the standard library only in order to perform the floating-point operation (and not using the C standard library), you won't need to initialize the C standard library and, therefore, won't need to call _c_main from the start-up program. (Please refer to [7.3.6 Calling the Main Function] in the CC32R User's Manual.)

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Document Number: 01051096_e

Q.

When I use a large number of arrays in the C source, the compile is aborted.

A.

If there is a statement which initializes an array including more than 10,000 elements, the compile will be aborted. To overcome this problem, describe the array initialization statement in the assembly language. We have already revised this problem in CC32R V.1.00 Release 4 and later.

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Document Number: 01051097_e

Q.

When I use the inline assembly function, the file optimization efficiency of the file including the inline assembly block drops greatly. Why?

A.

When the inline assembly function is used, a part of the optimization is restrained for the entire module. We recommend defining the functions for the inline assembly in a separate module.

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Document Number: 01051098_e

Q.

How does W95E (English) differ from W95J (Japanese)?

A.

The only difference is that the install displays, manual, and source notes for W95E are all in English.

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Document Number: 01051099_e

Q.

The "can't link low-level function" error message comes up during the link.

A.

The low-level function needs to be adjusted to your target system. Please refer to the manual concerning interfaces for low-level functions and create the function appropriate for your system.

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Document Number: 01051101_e

Q.

Is there a function which allows me to merge the C source and assembly source?

A.

Yes. You can merge sources in CC32R using the cmerge utility.

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Document Number: 01051102_e

Q.

Can I redirect the compiler error message when I use a PC?

A.

Yes. The -@ option outputs the display message in the standard output. By redirecting this standard output you can save the error message as a file.

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Document Number: 01051103_e

Q.

Can I perform a conditional assemble with the assembler?

A.

Yes. The assembler will recognize the following macro instructions as conditional assembles during the assembly program. Please refer to the manual for more details.

.AIF .AELSE .AENDI: Selects the corresponding flow according to specified conditions
.AREPEAT .AENDR: Repeats the flow according to the specified number
.AWHILE .AENDW: Continues the flow according to the specified conditions.

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Document Number: 01051104_e

Q.

When I initialize the variables declared by char with Oxaa, I get the following warning, "constant out of range due to...". Why?

A.

When signed/unsigned is not specified in the char type, char is assumed to be signed. Therefore, its value range is from -128 to 127 in decimal format. But, the 0xaa is 170 in decimal format, which is obviously out of the char range. Therefore, the compiler generates codes that round down 0xaa to the char range, and loads -86 into the variable in decimal format.
To avoid this warning, you should either declare the variable as unsigned char, or modify the variable to fit within the char declaration value range.

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Document Number: 01051105_e

Q.

When I compile, "xxx: can't execute" (a subordinate process can't be invoked.) message is displayed and the compile stops.

A.

Please reset the environment variables (M32RBIN, etc.).
If the environment variables are correctly set and this problem still occurs, it is cause must be in the resident virus buster.
This problem can be avoided by terminating the virus buster in your system.
As this problem is caused by the virus buster, please contact Trend Micro, Inc., marketers of virus busters, for more details.

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Last Updated: July 5, 2000
Document Number: 01051106_e

Q.

CC32R V.2.00 introduces [Memory Models]. What are the differences between the compiled results of each model?

A.

The generated assembler code will differ according to the operation, as described below.

1. Data Access (variable)

   When accessing data (variable), the code will differ depending on the instruction set used: 24-bit address (LD24 instruction) or 32-bit address (such as combination of SETH instruction and LD/ST instruction).

2. Function Call

   The code will differ depending on the type of function call used: PC-relative jump (BL instruction) or register-direct jump (JL instruction).

3. Function Address Acquisition

   The code will differ depending on whether the function address is obtained with 24 bits (LD24 instruction) or 32 bits (combination of SETH instruction and OR3 instruction).

Below is a list of codes created by each Memory Model according to the selected operation.

	Data Access (variable, constant)	Function Call	Function Address Acquisition

Small Model	`LD24 R0,#_data`
	`LD R0,@R0`
		`BL $func`	`LD24 R1,#$func`
			`LD24 R0,#_pfunc`
			`ST R1,@R0`

Small Model with "-memlarge"	`SETH R0,#SHIGH(_data)`
	`LD R0,@(LOW(_data),R0)`
		`BL $func`	`LD24 R1,#$func`
			`SETH R0,#HIGH(_pfunc)`
			`OR3 R0,R0,#LOW(_pfunc)`
			`ST R1,@R0`

Medium Model	`SETH R0,#SHIGH(_data)`
	`LD R0,@(LOW(_data),R0)`
		`BL $func`	`SETH R1,#HIGH($func)`
			`OR3 R1,R1,#LOW($func)`
			`SETH R0,#HIGH(_pfunc)`
			`OR3 R0,R0,#LOW(_pfunc)`
			`ST R1,@R0`

Large Model	`SETH R1,#SHIGH(_data)`
	`LD R0,@(LOW(_data),R0)`
		`SETH R1,#HIGH($func)`
		`OR3 R1,R1,#LOW($func)`
		`JL R1`
			`SETH R1,#HIGH($func)`
			`OR3 R1,R1,#LOW($func)`
			`SETH R0,#HIGH(_pfunc)`
			`OR3 R0,R0,#LOW(_pfunc)`
			`ST R1,@R0`

The following shows the C source code of the sample program foo.c and the assembler objects when compiled by each Memory Model.

- Sample C-Source Program - (foo.c)

```
1   extern int data;
2   extern void func(int);
3   extern void (*pfunc)(int);
4
5   void foo()
6   {
7       func(data);
8       pfunc = func;
9   }
10
```

[Assembler codes created by each Memory Model]

- Small Model -

```
    .SECTION    P,CODE,ALIGN=4
$foo:
    ST          R14,@-R15
    LD24        R0,#_data
    LD          R0,@R0
    ST          R0,@-R15
    BL          $func
    ADDI        R15,#4
    LD24        R1,#$func
    LD24        R0,#_pfunc
    ST          R1,@R0
            :
       - omitted -
            :
    .END
```

- Small Model - (with "-memlarge" option)

```
    .SECTION    P,CODE,ALIGN=4
$foo:
    ST          R14,@-R15
    SETH        R0,#SHIGH(_data)
    LD          R0,@(LOW(_data),R0)
    ST          R0,@-R15
    BL          $func
    ADDI        R15,#4
    LD24        R1,#$func
    SETH        R0,#HIGH(_pfunc)
    OR3         R0,R0,#LOW(_pfunc)
    ST          R1,@R0
            :
       - omitted -
            :
    .END
```

- Medium Model -

```
    .SECTION    P,CODE,ALIGN=4
$foo:
    ST          R14,@-R15
    SETH        R0,#SHIGH(_data)
    LD          R0,@(LOW(_data),R0)
    ST          R0,@-R15
    BL          $func
    ADDI        R15,#4
    SETH        R1,#HIGH($func)
    OR3         R1,R1,#LOW($func)
    SETH        R0,#HIGH(_pfunc)
    OR3         R0,R0,#LOW(_pfunc)
    ST      R1,@R0
            :
       - omitted -
            :
    .END
```

- Large Model -

```
    .SECTION    P,CODE,ALIGN=4
$foo:
    ST          R14,@-R15
    SETH        R1,#HIGH($func)
    OR3         R1,R1,#LOW($func)
    SETH        R0,#SHIGH(_data)
    LD          R0,@(LOW(_data),R0)
    ST          R0,@-R15
    JL          R1
    ADDI        R15,#4
    SETH        R1,#HIGH($func)
    OR3         R1,R1,#LOW($func)
    SETH        R0,#HIGH(_pfunc)
    OR3         R0,R0,#LOW(_pfunc)
    ST          R1,@R0
            :
       - omitted -
            :
    .END
```

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Document Number: 01051107_e

Q.

When I try to link an object file created with CC32R V.1.00 Release 3 or older releases, linking with CC32R V.1.00 Release 4 or newer releases, I get the "relocation out of range" error and the link cannot be completed.
Are there some differences between older releases and CC32R V.1.00 Release 4 and newer ones which could cause this problem?

A.

Yes, this occurs because the linker function (check function for when relocation size overflows) of CC32R V.1.00 Release 4 and later does not support the relocation data of object files/library files created on CC32R V.1.00 Release 3 or older. As a result, the proper error message will not be generated. In order to get the load module file, please use one of the following methods:

a. Re-compile or re-assemble the object file or library file using CC32R V.1.00 Release 4 or newer.

b. Specify the -RSW option (specifiable with lnk32R, cc32R) when linking. With the -RSW option, the linker changes the "relocation out of range" error to a warning, then generates the load module.

c. Specify the -RSN option (specifiable with lnk32R) when linking. The linker performs the overflow check on the relocation size with the same conditions as in Release 3. This will suppress the "relocation out of range" error.

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Last Updated: January 22, 2001
Document Number: 01051108_e

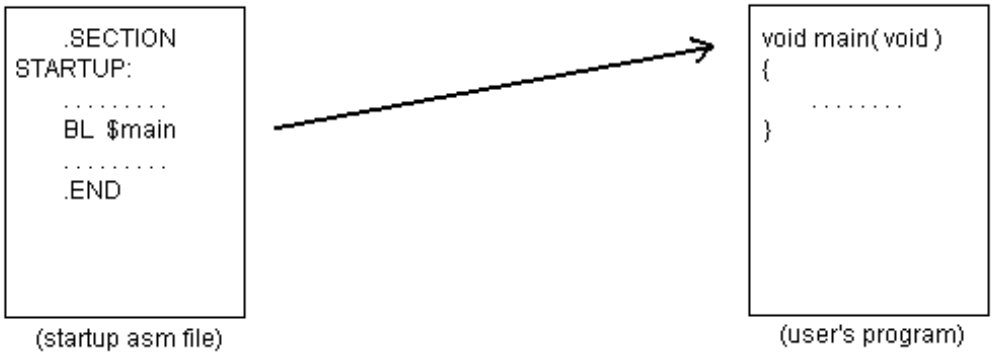
Q.

Please describe the flow from startup to main function.

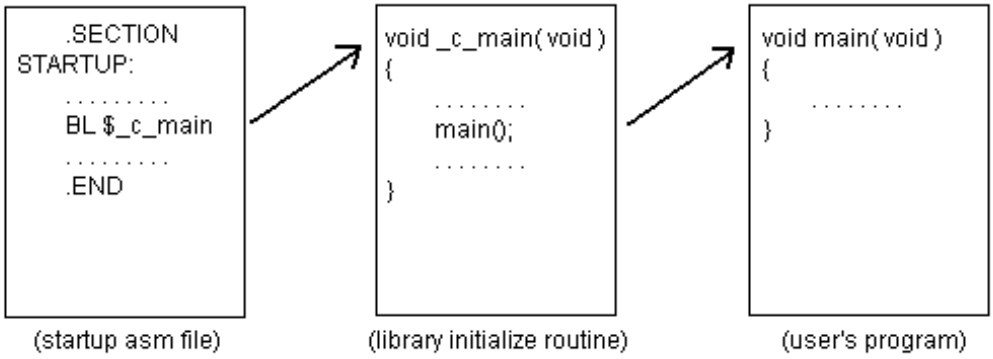
A.

Normally (Case 1 in figure below), you can call the main function for the user's program directly from the startup program. However, when using the C standard library (Case 2 in figure below), you must call the library initialization function (_c_main) from the startup program, initialize it, and then call the main function of the user's program. There is no need to create a library initialization function, as it is included in the library.

■ CASE 1: don't use C-standard-library



■ CASE 2: use C-standard-library



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Document Number: 01051109_e

Q.

Can CC32R V.1.00 and older versions be used with M32Rx?

A.

No, they are not compatible with M32Rx. M32Rx instructions are supported by CC32R V.2.00 and newer versions at the assembler level.

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M3T-MR32R (M3T-MR32RK, M3T-MR32RS) Real-time OS

See Tool News for this product

Last Updated: April 5, 2001

- Renesas provides two versions of MR32R: MR32RK and MR32RS. What are the differences between them? (Apr. 5, 2001)
- I upgraded my MR32R to V.3.30 Release 1 but, after modifying the program, when I tried to link with the new program, I got the following error.
  Why do I get this error even though I have not defined symbols such as "_REL_BASE11"? (Feb. 5, 2001)

  lnk32R: "C:\MTOOL\lib32r\mr32R.lib": error: external symbol not defined: "__REL_BASE11"
- When memory fragments appear during the MR32R operation, MR32R fails to obtain the necessary memory blocks even though there are more than enough memory blocks available.
  Does MR32R have any memory management function to recover the fragments while the MR32R is in operation? (Aug. 25, 2000)
- In the MR32R User's Manual, Section 3.5.11 Memory Pool Management Function, the subsection concerning 'variable length memory pool management function' says: the specified maximum acquisition size of a memory block is 400B. But the actual block acquired becomes more than specified size, 400B. Why is that? (Aug. 25, 2000)
- When using MR32R V. 1.00 Release 1 -- V.2.00 Release 2, I have to specify heap_size (heap area size). What is this heap size used for? Is this area required even if I don't use cre/del/exd_tsk? (Apr. 5, 2000)
- What is the best system clock frequency?
- My program is malfunctioning...
- After upgrading my software, the programs I had been using no longer work. What's wrong?
- We plan to use a third party for software development. Who should purchase the production license?
- How many kinds and quantities of products can be covered by one production license?
- Is it possible to purchase the MR32RS production license only, without purchasing the development kit?

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Last Updated: April 5, 2001
Document Number: 01051069_e

Q.

Renesas provides two versions of MR32R: MR32RK and MR32RS. What are the differences between them?

A.

Version	MR32RK	MR32RS
Product Description	Development Kit Version of MR32R	Production Version of MR32R
Software Configuration	Contains complete software kit for application program development.	Only includes source file program. * User cannot develop a MR32R application system with this package alone.
License Conditions	MR32RK can be used in up to 10 target systems by the purchaser.	Unlimited number of run-time licenses for original purchaser.
No. of hosts permitted	Development must be limited to one PC (IBM PC/AT compatible) or one EWS.	Can be used for development on up to a total of 20 PCs (IBM PC/AT compatible) and EWS.
Other	MR32RS is mainly purchased for customers who intend to use it for mass production of systems with a pre-embedded OS. Therefore, the purchase of MR32RK is considered a prerequisite.	

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Last Updated: February 5, 2001
Document Number: 01051070_e

Q.

I upgraded my MR32R to V.3.30 Release 1 but, after modifying the program, when I tried to link with the new program, I got the following error:

lnk32R: "C:\MTOOL\lib32r\mr32R.lib": error: external symbol not defined: "__REL_BASE11"

Why do I get this error even though I have not defined symbols such as "_REL_BASE11"?

A.

These symbols are essential in supporting the base register functions that have been added from CC32R V.3.00.
These symbols ("_REL_BASE11", "_REL_BASE12", and "_REL_BASE13") are referenced by the OS kernel even when the base-register functions are not used. If these symbols are not defined as external references, a link error will occur.
When not in use, any value can be input to the base-register without effecting operations. You need to define these symbols as dummy symbols to avoid generating an error when linking.

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Last Updated: August 25, 2000
Document Number: 01051071_e

Q.

When memory fragments appear during the MR32R operation, MR32R fails to obtain the necessary memory blocks even though there are more than enough memory blocks available.
Does MR32R have any memory management function to recover the fragments while the MR32R is in operation?

A.

Yes, MR32R has a function that combines neighboring memory blocks of the same size into a bigger block when a memory block is released. MR32R sometimes fails to obtain necessary memory blocks even though there are more than enough memory blocks available, to avoid further fragmentation from happening.

In addition, to speed up the memory allocation process, when a memory-acquisition request is received, the CPU assigns the biggest fixed memory block that is closest to the size indicated in the request.

For example, when the fixed length memory block size is one of the following,

60bytes(48bytes)
120bytes(108bytes)
240bytes(228bytes)
480bytes(468bytes)

and there is a memory-acquisition request for 100 bytes, the second size, 120 bytes, of fixed memory block will be used.
In the same manner, if there is a memory-acquisition request for 200 bytes, the fourth size, 480 bytes, is divided by 2 and two 240-byte blocks are generated and assigned.

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Last Updated: August 25, 2000
Document Number: 01051072_e

Q.

In the MR32R User's Manual, Section 3.5.11 Memory Pool Management Function, the subsection concerning 'variable length memory pool management function' says: the specified maximum acquisition size of a memory block is 400B. But the actual block acquired becomes more than specified size, 400B. Why is that?

A.

The MR32R calculates 4 types of fixed-length memory block sizes, based on the specified maximum acquisition size, in the following order.

1. Calculation method of minimum size:
   ((max. acquisition size + (memory management area - 1)) / 96+1) * memory management area
   *The memory management area is for all fixed-length blocks management and, therefore, requires 12 bytes.
2. Calculate the four fixed-length block sizes by multiplying the minimum size by 1, 2, 4 or 8.

For example, when the maximum acquisition size is set at 400B, the fixed-length memory block size to be acquired is calculated in the following manner:

1st size (minimum size) : ((400+(12-1))/96+1)*12=60
2nd size (2 * min. size) : 120bytes(108bytes)
3rd size (4 * min. size) : 240bytes(228bytes)
4th size (8 * min. size) : 480bytes(468bytes)

Therefore, the actual acquired fixed-length block size may be bigger than the specified maximum size.

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Last Updated: April 5, 2000
Document Number: 01051073_e

Q.

When using MR32R V. 1.00 Release 1 -- V.2.00 Release 2, I have to specify heap_size (heap area size). What is this heap size used for? Is this area required even if I don't use cre/del/exd_tsk?

A.

'heap_size' defined in the system definition table must be determined when 'cre_tsk', 'del_tsk', and 'exd_tsk' are used. The area to be used for this definition is allocated in the stack area of each task. This stack area will be allocated in the USER_STACK section even though these system calls are not used.

[Reference]
The difference between specifying or not specifying 'heap_size' and 'max_memsize' are:

When 'cre_tsk' is used, the stack area is dynamically allocated and released. Therefore, the area for the OS management table data is needed. This is why this definition is needed. When 'cre_tsk' is not used, the dynamic stack allocation is not required, the area for the OS management table data is needed and, hence, the definition of 'heap_size' and 'max_memsize' is not required.

Furthermore, when defining 'heap_size' and 'max_memsize' for 'cre_tsk' use, the stack is allocated by every memory size management unit under the OS management. Therefore, more memory than the specified stack size at the task generation is used.

Please note that, whether or not you define heap_size or max_memsize_, the area you use will require the same USER_STACK and, when this area is defined (in other words, when you use the cre_tsk task), extra memory will be required.

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Document Number: 01051074_e

Q.

What is the best system clock frequency?

A.

You should consider the deviation of the required clock frequencies. For example, if one task requires a 15ms frequency and another requires a 20ms frequency, you need a 5ms system clock frequency, the largest common denominator for the frequencies of both tasks. However, the deviation is also 5ms max.
To minimize the deviation, you should select a slightly higher system clock frequency.

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Document Number: 01051075_e

Q.

My program is malfunctioning...

A.

Is your stack size big enough?

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Document Number: 01051076_e

Q.

After upgrading my software, the programs I had been using no longer work. What's wrong?

A.

Make sure you are using the 'startup' and 'include' files of the upgraded version of the MRxxx product.

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Document Number: 01051077_e

Q.

We plan to use a third party for software development. Who should purchase the production license?

A.

The party who is responsible for manufacturing the product with the embedded MRxxx and MCU should purchase the license.

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Document Number: 01051078_e

Q.

How many kinds and quantities of products can be covered by one production license?

A.

This is a site license. Therefore there is no limitation on the kind or quantity of products, as long as the products are designed and manufactured in your department.

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Document Number: 01051079_e

Q.

Is it possible to purchase the MR32RS production license only, without purchasing the development kit?

A.

No. You will need to purchase both the production license and development kit together.

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M3T-PD32RSIM Simulator Debugger

See Tool News for this product

Last Updated: February 20, 2002

- I want to setup interval data sampling using the OnTimer function the CB32RSIM. Please tell me the LSB for the interval to be set in _win_timer_set. The manual indicates milliseconds (ms). However, based on my tests so far, when I set 1000ms or more, I have no problem, but when I set 10ms as the interval, the actual interval is around 50ms. (Feb. 20, 2002)*New!*

- I get an error and I can not use the custom commands when I:
  1. Use the OPEN button in the script window to open a *.scr file which is not in the same directory as PDxx.EXE,
  2. then execute a custom command, in the script window, which exists in the same directory as PDxx.EXE does.

  I realize I can execute custom commands by placing the *.scr file in the same directory as the PDxx.EXE, but in this case having to put both in the same directory is not convenient. (Nov. 19, 1999)

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Last Updated: February 20, 2002
Document Number: 02020504_e

Q.

I want to setup interval data sampling using the OnTimer function the CB32RSIM. Please tell me the LSB for the interval to be set in _win_timer_set. The manual indicates milliseconds (ms). However, based on my tests so far, when I set 1000ms or more, I have no problem, but when I set 10ms as the interval, the actual interval is around 50ms.

A.

In Windows 98/95, the shortest interval available when generating timer events is around 55ms. Therefore, if you are using Windows 98/95, even if you set the interval in _win_timer_set to 10ms, the timer events will be generated every 55ms or so.

We think, in Windows 2000, the interval depends on the PC environment (motherboard, etc.).
In addition, when a timer event is generated, the timer message goes to the message queue in the application. The application doesn't necessarily receive the timer message at the specified interval, and Windows operations may cause a delay. When setting data sampling, etc., please keep in mind that the timer event intervals are not accurate.

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Last Updated: November 19, 1999
Document Number: 01050893_e

Q.

I get an error and I can not use the custom commands when I:

1. Use the OPEN button in the script window to open a *.scr file which is not in the same directory as PDxx.EXE,
2. then execute a custom command, in the script window, which exists in the same directory as PDxx.EXE does.

I realize I can execute custom commands by placing the *.scr file in the same directory as the PDxx.EXE, but in this case having to put both in the same directory is not convenient.

A.

You can avoid this situation by changing the search path for your custom commands. Execute the MacroPATH command in the script window, then set the search path. For example, to included C:/Mtool/PD30 in the *.p file, the setting will be as follows:

>MacroPATH C:/Mtool/PD30

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M3T-PD32R Emulator Debugger for M32100T2-SDI-E system

See Tool News for this product

Last Updated: February 5, 2004

- I can't start up my debugger with the USB interface even though I have used it successfully before. What's the problem? (Feb. 5, 2004) NEW
- I can't install the USB Driver successfully. What could be the problem? (Feb. 5, 2004) NEW
- I am having trouble downloading the program to the MCU internal Flash memory using M3T-PD32R/PD32RM. (Oct. 20, 2003)
- The following error occurs when using M3T-PD32R: (Jan. 20, 2003)

  Error 16317: The sent command cannot be executed in this H/W environment.
- I need to open the trace window in order to use the M3T-PD32R trace function, but I am unable to select the menu that would allow me to open the trace window in M3T-PD32R. (July 5, 2002)
- When I refer the M32R interrupt vector register (IVECT) on M3T-PD32R (displaying values in the RAM monitor window or the DUMP window), the interrupt doesn't operate properly. I think this may be because M3T-PD32R doesn't link the displayed values and the IVECT readout. (Feb. 20, 2002)

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Last Updated: February 5, 2004
Document Number: 04010902_e

Q.

I can't start up my debugger with the USB interface even though I have used it successfully before. What's the problem?

A.

Do you have Xilinx, Inc. software installed on your PC? If so, please refer to the problems discussed on the Xilinx Homepage.

(1) If any of the problems apply to your situation, please try the solutions offered by Xilinx.
(2) If the above solutions do not solve the problem and you still can't install the USB Driver, try inserting the latest version of the Xilinx, Inc. software.
(3) If the suggestions in both (1) and (2) above don't help, please contact Xilinx technical support directly.

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Last Updated: February 5, 2004
Document Number: 04010901_e

Q.

I can't install the USB Driver successfully. What could be the problem?

A.

Do you have Xilinx, Inc. software installed on your PC? If so, please refer to the problems discussed on the Xilinx Homepage.

(1) If any of the problems apply to your situation, please try the solutions offered by Xilinx.
(2) If the above solutions do not solve the problem and you still can't install the USB Driver, try inserting the latest version of the Xilinx, Inc. software.
(3) If the suggestions in both (1) and (2) above don't help, please contact Xilinx technical support directly.

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Last Updated: October 20, 2003
Document Number: 03100602_e

Q.

I am having trouble downloading the program to the MCU internal Flash memory using M3T-PD32R/PD32RM.

A.

When using M3T-PD32R V.3.00 Release 1 or later, power on the emulator (M32100T2-SDI-E) after setting the RESET CTL switch to "Low START."
When using M3T-PD32RM V.1.00 Release 1 or later, power on the emulator (M32100T3-SDI-E/M32100T-EZ-E) after setting the RESET CTL switch to "Low START."

The Flash area address information and sector configuration have already been programmed to the MCU. When a program is downloaded to the internal Flash memory, the information that is already programmed in the MCU is used as the basis for this operation. When the internal information cannot be retrieved correctly, the download to the Flash memory cannot be executed. The internal Flash memory information cannot be retrieved correctly if the RESET CTL switch is set to "Hiz START" when turning on the emulator.

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Last Updated: January 20, 2003
Document Number: 03010701_e

Q.

The following error occurs when using M3T-PD32R:

Error 16317: The sent command cannot be executed in this H/W environment.

[Conditions]

Target MCU is a Flash memory MCU.

[Operation]

The above error occurred in all of the following situations:
(1) M3T-PD32R start-up
(2) Program execution
(3) Program download

A.

Each process in the emulator references the Flash memory in the target MCU. If the result of the Flash memory reference is unstable, or the resulting value is different than expected, Error 16317 is generated.

Please confirm the following items on the target MCU to avoid this error.

(1) FVCC pin
When the FVCC is located on the MCU, make sure the voltage supplied to the FVCC pin is within the MCU specification. Also, make sure the voltage supply to the pin is stable.

(2) FP pin
When the FP pin is located on the MCU, make sure the voltage supply to the pin is stable.

(3) Power-supply pin
Make sure the voltage supply to the power-supply pin on the MCU is stable.

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Last Updated: July 5, 2002
Document Number: 02062002_e

Q.

I need to open the trace window in order to use the M3T-PD32R trace function, but I am unable to select the menu that would allow me to open the trace window in M3T-PD32R.

A.

The M3T-PD32R trace window can be opened when all of the following conditions are satisfied.

- The target MCU trace output pin and the emulator are connected with a trace interface cable.
- The correct MCU file is selected with the MCU tab in the Init dialog that is open at the time M3T-PD32R is launched.
  (For details on how to select the correct MCU file, refer to M3T-PD32R Release Note titled, "MCU file list provided with the PD32R product".)
- The "Connect" radio button is selected with the SDI Trace Cable tab in the Init dialog that is open at the time M3T-PD32R is launched.
  (If the Init dialog doesn't open when M3T-PD32R is launched, restart M3T-PD32R while pressing the Ctrl key.)

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Last Updated: February 20, 2002
Document Number: 02020502_e

Q.

When I refer the M32R interrupt vector register (IVECT) on M3T-PD32R (displaying values in the RAM monitor window or the DUMP window), the interrupt doesn't operate properly. I think this may be because M3T-PD32R doesn't link the displayed values and the IVECT readout.

A.

When referencing (displaying) the contents of the memory by debugger, the memory is readout. Therefore, SFR registers (such as 32170 Group interrupt vector register) change states while the memory is being read, and you should note it when referencing by debugger.

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M3T-PD32RM Emulator Debugger for M32100T5-SDI-E, M32100T3-SDI-E, and M32100T-EZ-E system

See Tool News for this product

Last Updated: February 5, 2004

- I can't start up my debugger with the USB interface even though I have used it successfully before. What's the problem? (Feb. 5, 2004) NEW
- I can't install the USB Driver successfully. What could be the problem? (Feb. 5, 2004) NEW
- I am having trouble downloading the program to the MCU internal Flash memory using M3T-PD32R/PD32RM. (Oct. 20, 2003)

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Last Updated: November 19, 2002
Document Number: 02110501_e

Q.

How can I obtain hardware waveform data (send/receive waveforms of communication, etc.) using the PDSDK COM Kit?

A.

You can display waveforms using the RAM monitor data of the debugger but you won't be able to directly obtain the hardware waveform data.
When using the RAM monitor data, please be aware of the following items.

- The RAM monitor obtains bus access data. Therefore, transactions through I/O ports other than access from the target program will not show up in the RAM monitor.
- Because the PDSDK COM Kit performs RAM monitor data sampling, not all of the transactions of the RAM can be obtained.

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M32xxxTx-SDI(-E) Emulator for M32R/ECU, M32R/E, M32Rx/D[Discontinued] Series

See Tool News for this product

Last Updated: October 20, 2003

- I am having trouble downloading the program to the MCU internal Flash memory using M3T-PD32R/PD32RM. (Oct. 20, 2003)*New!*
- My program stops when I execute it on Emulator M32xxxTx-SDI (-E), even though there are no software or hardware breaks in the settings. What is causing this problem? (2001.11.20)

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Last Updated: November 19, 2001
Document Number: 01110501_e

Q.

My program stops when I execute it on Emulator M32xxxTx-SDI (-E), even though there are no software or hardware breaks in the settings. What is causing this problem?

A.

Please check the following items.

1. Check that the operating frequency of the target system is within the guaranteed operating range.
2. When connecting M32xxxTx-SDI(-E) via JTAG, check the condition of the connecter between the target MCU and the emulator.

   (1) Is it connected through the input/output buffer?

   (2) Is each signal line wired according to the recommended circuit diagrams?

   * Recommended circuit diagram can be found in the M32100T2-SDI-E Instruction Manual.

   In the JTAG connection, noise may cause the emulator to mis-operate. Please try the two noise reduction methods as possible workarounds.

   (1) Insert a 50©serial resistor between the input/output buffer and the signal lines listed below which are attached to the connector for emulator-use. This will be effective in buffering noise generated on these lines.

   No. 1 pin (TCLK line)
   No. 3 pin (TDI line)
   No. 4 pin (TDO line)
   No. 5 pin (TMS line)
   No. 6 pin (TRST line)
   No. 7 pin (DBI line)

   (2) Connect a 0.1µF ceramic capacitor between the Vcc (No. 9 pin) and Vss (No. 2 pin) of the connector for the emulator. This is effective in buffering noise generated on the Vcc (No. 2 pin) line.

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Last Updated: February 5, 2002
Document Number: 02012104_e

Q.

How do I know if I have already completed my user registration or not?

A.

When you register as a user, we send you a "User Registration Completion Notice" by e-mail (or FAX). If you have not received this, you are probably not registered as a user yet.

Please complete the "User Registration Confirmation Form" with the required information and send it to the User Registration Desk. After confirming your registration status here, we will send you a response.

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Last Updated: February 20, 2003
Document Number: 01090502_e

Q.

I need to change/cancel my registration.

A.

Please download the appropriate form and send it to the User Registration Desk.

* When another person uses the product succeedingly, please change your name into the new person's in your registration by the "User Registration Modification Request Form".
  In this case, you don't need to send the "User Registration Termination Request Form".

- Registration Changes: User Registration Modification Request Form
- Registration Cancellation: User Registration Termination Request Form

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Last Updated: July 5, 2001
Document Number: 01052101_e

Q.

How can I check the details concerning my registration?

A.

Please fill in "the User Registration Confirmation Request Form" send it to the User Registration Desk.

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Last Updated: July 5, 2001
Document Number: 01052103_e

Q.

How do I know my registration is completed?

A.

We will send you a "User Registration Completion Notice" through e-mail. Please note that the registration process takes one to two weeks.

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Last Updated: July 5, 2001
Document Number: 01052104_e

Q.

Do I have to register for updated products?

A.

Yes. Your renewal registration will help us to improve our user support activities.

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Last Updated: August 5, 2003
Document Number: 03072226_e

Q.

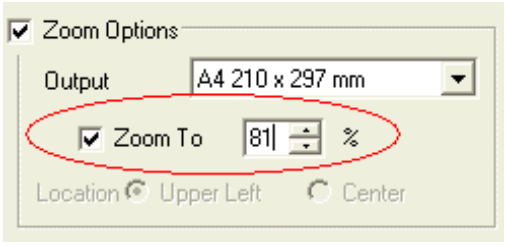
How can I successfully printout Tool News from the Web site? When I try to print out Tool News on A4-size paper, the right side gets cut off.

A.

Please try printing out Tool News using one of the following methods, always setting the paper direction to "vertical."

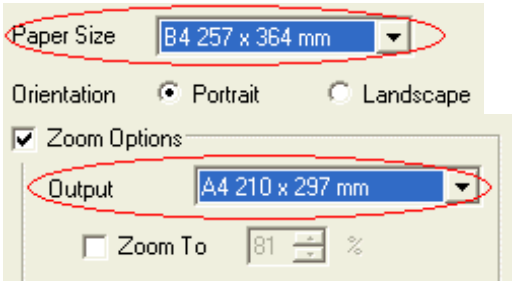
Print Method 1
Select [File] -> [Print...] in browser menu, set shrink rate to 81% (see Diagram 1), then print.

Diagram 1



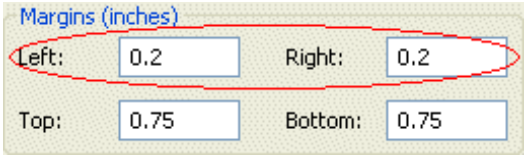
Print Method 2
Select [File] -> [Print...] in browser menu, set paper size to B4 or A3, set output size to A4, (see Diagram 2), then print.

Diagram 2



Print Method 3
Select [File] -> [Page Setup...] in browser menu, set L/R margins to approx. 3.0mm (see Diagram 3), then print.

Diagram 3



* The screen images shown above may differ according to printer driver, browser, and OS.

* Due to influences from various printing environments and images on the pages, these values and sizes may not fit perfectly on A4 paper. We apologize for the inconvenience, but we encourage you to make further adjustments to achieve the optimum printing parameters.

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Last Updated: July 22, 2003
Document Number: 01050889_e

Q.

How can I find out the type and license ID of the emulator debuggers included in the CD-ROM that comes bundled with Emulators PC4701U/PC4701M?

A.

The following is a list of the 5 emulator debuggers that can be used with Emulators PC4701U/PC4701M.

M32C/80, M16C/80 Series:	M3T-PD308
M16C/60, 30, 20, 10 Series:	M3T-PD30
79xx Series:	M3T-PD79
77xx Series:	M3T-PD77
740 Family:	M3T-PD38

You may find more debugger software in the CD-ROM other than those listed above, but it is unnecessary to install these for PC4701U/PC4701M.

These 5 debuggers can be used free-of-charge in combination with PC4701U/PC4701M. No license ID is required and the M3T-PDxx bundled with PC4701U/PC4701M does not come with a designated License ID.
To use the debuggers that come with Emulator PC4701U/PC4701M, open the [License Selection] dialog during installation, check [Installing the debugger only for PC4701U/M], and enter the serial number of your PC4701U/PC4701M.

For the most recently updated PC4701U/PC4701M emulator debuggers: English Version

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Last Updated: December 5, 2002
Document Number: 01052102_e

Q.

I forgot my license ID for the software tool. How can I get it?
* Please refer to here, about the license ID for the emulator debugger PDxx that was included in the Emulator PC4701U/PC4701M.

A.

Please follow these steps:

(1) Did you complete your registration?

YES

Please review your "User Registration Completion Notice"*.

* The "User Registration Completion Notice" is sent to the user as the last step in the user registration procedure.

If you cannot find this form, please fill in "the User Registration Confirmation Request Form" and mail it to the User Registration Desk.

NO

(2) Have you already installed the software?

YES

The following files include your license ID. These files were created in the folder where you installed the software (the default folder is MTOOL).

[The example of NC30WA]

User Registration Sheet : \MTOOL\SUPPORT\nc30wa\regist.txt

Technical Support Communication Sheet : \MTOOL\SUPPORT\nc30wa\support.txt

NO

(3) Are you still in contact your local Renesas sales office or distributor from whom you purchased the software?

YES

Please fill in user information column of "the License ID Confirmation Request Form" and forward this form to your representative. Ask your representative to fill in his part of the information and send it to our tool user registration address.

NO

Please fill in "the Lost License ID Form" and send it to the User Registration Desk. We will send a reply as soon as possible.

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Last Updated: September 5, 2003
Document Number: 03072228_e

Q.

Please provide details concerning hardware tool repairs.

A.

[Repair Limitations]
The hardware repairs are as described below.

Repairs are guaranteed for 12 months from the date of purchase.
For details concerning the full guarantee, please refer to the FAQ page. Repairs other than those included in the parameters of the guarantee will be charged to the customers.

However, some parts may not be replaceable or repairable discontinued production, etc. In addition, products that have been discontinued for over one year will no longer be repaired.
The problems listed below cannot be repaired and will require unit exchange or purchase of new unit.

1. Faulty or broken mechanical portions
2. Scratches, peeling, rusting on paint or electro-plated areas
3. Scratches or cracks in resin areas
4. Damage due to misuse or incorrect repairs or other changes to product
5. Major damage to electrical circuits due to over-voltage, over-current, or shorting of power supply, etc.
6. Broken print board, pattern burn-out
7. When the number of repairs is so wide-spread that it would be less expensive to exchange the unit than repair it
8. Unlocatable or unidentified faults

Programming adapters and accessory tools are expendable parts and are therefore not covered by the guarantee. However, if these products are damaged during shipping, we will replace them free-of-charge.

For rental products, please contact the related rental or management company.

[How to Request Repairs]
Click here for details.
Please download the Repair Request Sheet from here.

The above information is also included in each product User's manual. Please read carefully before requesting repairs.

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Last Updated: August 20, 2003
Document Number: 03072227_e

Q.

What kind of guarantee covers RSO hardware tools?

A.

The hardware guarantees are as described below.

All products have passed RSO product inspection.
Please use these products according to the normal usage conditions described in the [Precautions for Safety] in the User's Manual. If used properly and the product fails in some manner within 12 months of the date of purchase, the product will be repaired or replaced free-of-charge.

However, if the following types of damage occur to the product, even within 12 months of purchase, costs for the necessary repairs or replacement will be charged to the customer.

1. Damage due to misuse, abuse, or use under any other abnormal conditions
2. Damage to unauthorized repair, remodeling, maintenance, and so on
3. Damage due to defective or improper environment in the users system
4. Damage due to fire, earthquake, or any other type of accident

Click here for more information concerning repairs.

The guarantee period differs according to product. For more details, check the [Maintenance and Guarantee] section in each User's Manual.

For rental products, please contact the related rental or management company.

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M3T-PD32000 Emulator Debugger for M32R/D Series [Discontinued Product]

See Tool News for this product

Last Updated: September 20, 2000

- Is there anything I need to know about specifying a memory map in the MCU file? (Sep. 20, 2000)
- When I perform a "Soft Reset" on the debugger, the program starts from an address other than the "Reset Address". How can I set it up so that it starts from the "Reset Address"? (Sep. 20, 2000)
- I use the M32000TB-2MB-E emulator. When I look at the reset vector area during debugging, after I download the execution module, the debugger displays the "not response" error due to time out. Please let me know what the problem is and how to work around it. (Jul. 21, 2000)
- I get an error and I can not use the custom commands when I:
  1. Use the OPEN button in the script window to open a *.scr file which is not in the same directory as PDxx.EXE,
  2. then execute a custom command, in the script window, which exists in the same directory as PDxx.EXE does.

  I realize I can execute custom commands by placing the *.scr file in the same directory as the PDxx.EXE, but in this case having to put both in the same directory is not convenient. (Nov. 19, 1999)

M32R Family FAQ Index | FAQ Index

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Last Updated: September 20, 2000
Document Number: 01050922_e

Q.

Is there anything I need to know about specifying a memory map in the MCU file?

A.

Please be aware of the following points when specifying a memory map in the MCU file.

- Specifying a memory map in the MCU file differs according to the user's debug environment (target). Make sure you set the map to fit your environment.
- Set the memory access size of an address that doesn't have a memory to "0".
- Make the access size of the memory map the same as the access size of the memory on the target board.
- If you are using an emulation memory, enable the access to the memory map located at the address of that emulation memory.

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Last Updated: September 20, 2000
Document Number: 01050923_e

Q.

When I perform a "Soft Reset" on the debugger, the program starts from an address other than the "Reset Address". How can I set it up so that it starts from the "Reset Address"?

A.

Set a global label on the destination address of the reset vector, then set that label as the entry point with the -e option of the linker LNK32R.

[Reference]
Debugger PD32000 initializes the program counter (PC) after issuing the reset command, according to the following conditions.

- Condition 1:
  When the entry point information is included in the load module file, the address set as the entry point information is set in the PC. The entry point information is the debug information used to set the program start address for the debugger. The entry point can be specified with the -e option of Linker LNK32R.
- Condition 2:
  When the entry point information is not included in the load module file (or when the program is not yet downloaded), 'address 100h' is set in the PC as the default address.

[Supplement]
The "Reset Go" function is provided for debugging the reset vector program (to confirm that the vector can branch to the program start address correctly). This function enables the program to start from the reset vector by applying the system reset on the target board. You will find "Reset Go" on the PD32000 main menu under "Debug".

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Last Updated: July 21, 2000
Document Number: 01050924_e

Q.

I use the M32000TB-2MB-E emulator. When I look at the reset vector area during debugging, after I download the execution module, the debugger displays the "not response" error due to time out. Please let me know what the problem is and how to work around it.

A.

The PD32000 emulator debugger is configured to access the memory in blocks of 512 bytes each. Therefore, if you disassemble the code from address 7FFFFFF0h, the emulator will try to access the area that exceeds address 80000000h. At this time, if there is no memory assigned here, the debugger displays the "not response" error.
To work around this problem, define all areas as either blank or non-blank areas (areas mapped as the target memory and emulation memory) through the MPU file.

For more information concerning the memory access specification, please refer for User's Manual, Setup Section, Paragraph 1.3.2.

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FAQs

32-bit M16 Family

July 5, 1999

Discontinued Product	
CC16 (July 5, 1999)	Cross Tool Kit (C compiler and Assembler) (Discontinued Product)

FAQs Index

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CC16 [Discontinued Product]

See Tool News for this product

Last Updated: July 5, 1999

- How about Y2K problem in CC16? (Jul. 5, 1999)

M16 Family FAQ Index | FAQ Index

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Document Number: 01050996_e

Q.

How about Y2K problem in CC16?

A.

Refer to Tool News.

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FAQs

32/16-bit M32C/80 Series, 16-bit M16C/80 Series

August 20, 2004

MM (Jan. 7, 2003)	Maskfile Converter MM
HEW (Aug. 20, 2004) UP	Integrated Development Environment (attached to M3T-NC308WA) "**H**igh-performance **E**mbedded **W**orkshop"
TM (Aug. 5, 2004)	Integrated Development Environment (attached to M3T-NC308WA)
SQMlint (June 21, 2004)	MISRA C Rule Checker
M3T-NC308WA (May 8, 2003)	C Compiler Package (with AS308, HEW, TM and M3T-PD308SIM)
M3T-MR308 (Aug. 5, 2002)	Real-time OS (Development kit M3T-MR308K and Mass Production Contract M3T-MR308S)
M3T-PD308SIM (June 5, 2003)	Simulator Debugger (attached to M3T-NC308WA)
M3T-PD308F (June 7, 2004)	Emulator Debugger for M32C/80 Series
M3T-PD308 (June 7, 2004)	Emulator Debugger for M32C/80, M16C/80 Series
PDSDK COM Kit (Nov. 19, 2002)	Debugger Customization kit
PC4701 (Oct. 20, 2003)	Emulator for M16C, 7700, 740 Families PC4701U (Now!) PC4701M/PC4701HS/PC4701L/PC4700H/PC4700L (Discontinued Product)
PC7501 (Oct. 20, 2003)	Emulator for M16C Family
M308xxT-EPB (June 7, 2004)	Emulation Probe for M32C/80 Series
M308xxT-RPD-E (June 7, 2004)	Emulation Pod
Accessories (Nov. 5, 2003)	Accessory Tools
Others (Sep. 5, 2003)	User Registration, License ID, Guarantee and Repair, etc.

M32C/80,M16C/80 Series Index | FAQs Index

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M3T-NC308WA C Compiler Package

See Tool News for this product

Last Updated: May 8, 2003

- The stack overflowed even though I reserved the correct stack size as displayed in the Stk Viewer. Is the stack size shown in the Stk Viewer not enough? (May 8, 2003)*New!*
- In what kind situation is the -LOC option used for ln308 and ln30? (Jan. 7, 2003)
- Can I use KANJI(Chinese) characters in C source programs? (Nov. 19, 2001)
- I am using Integrated Development Environment TM V.3.01, and, after making additions to my program, I got the following message: "No. 6. Stk Viewer: Out of memory". What is the work-around for this? (Sep. 5, 2001)
- In NC308WA V.3.00 Release 1, the "enter" instruction is output at the start of the function. But because it is not output in V.3.10 Release 2, the stack argument cannot be correctly referenced from the in-line assembly description. How can I generate the "enter" instruction in this case? (Sep. 5, 2001)
- I made the following program(1) in C. Upon examining the generated codes, it seems that variable x (the operand) is compared with 5 before the variable increment. Is the following description(2) necessary in order to have variable x compared with 5 after the variable increment? (Jul. 5, 2001)

  (1)

  ```
  if (x++ == 5){
       aaasub();
  }
  ```

  (2)

  ```
  x++;
  if (x ==5){
      aaasub();
  }
  ```

- When making my program in C language, I want to place the global variable according to the sequence described in the definition. How can I do this? (Dec. 20, 2000)
- Can I use TM V.2.01 and NC308WA V.3.00 together? (Nov. 6, 2000)
- Does the prototype declaration determine how the function argument is passed? (Aug. 25, 2000)
- Does the passing method of function arguments affect the program's interchangeability? (Aug. 25, 2000)
- Is there any difference in the speed or size of the program when a function argument is passed by a register compared to a stack? (Aug. 25, 2000)
- What are the required conditions for a function argument to be passed by a register? (Aug. 25, 2000)
- I was under the assumption that all const declarations were assigned to the ROM sections. But when I specify the constants as shown below, these constants were assigned to data sections. How can I assign the following to ROM sections? (Aug. 25, 2000)

```
const S_TBL *sp_tbl[]={
    p00,  /* pointer to structure */
    p01,  /* pointer to structure */
    p02,  /* pointer to structure */
};
```

- Can I add new functions to the compiler library? (Aug. 25, 2000)
- Which has higher priority, the optimization option or the de-optimization option? (Aug. 7, 2000)
- When I specify several optimization options, in what priority are the options processed? (Aug. 7, 2000)
- Can I define the optimization contents in detail with optimization option "-ONSBD"? (Aug. 7, 2000)
- When optimization option "-ONSBD" is specified, what kind of de-optimization happens? (Aug. 7, 2000)
- When I generated sbdata.h with the SBDATA declaration utility (utlxx), some of the variables become comments. Why is this? (Aug. 7, 2000)
- When using NCxxWA, how can I prevent my application from linking unnecessary functions, such as MALLOC() and MEMCPY()? (Aug. 7, 2000)
- I want to execute Imc308 in the following manner, but I can't change the start address. What is the problem? (Aug. 7, 2000)

```
>lmc308 -E 00 test.x30
```

- I want to change a program with the start address as 0xFC0000 to the Motorola S format with the start address as 0x000000. Can I do this? (Aug. 7, 2000)
- I want to declare a combination of bit fields, such as a combination of 3, 10, and 11 bit widths, without leaving blank bits between each field (without padding). How can I do that?(Jul. 21, 2000)

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Last Updated: November 19, 2001
Document Number: 01112001_e

Q.

Can I use KANJI(Chinese) characters in C source programs?

A.

Yes, you can. Japanese characters can be used in NC308WA.
The following character types can be included.

- kanji
- hiragana
- full-size katakana
- half-size katakana

It is necessary to set up the environment variables to use Japanese characters. Please refer to NC308 User's Manual "Description of Japanese Characters" for setting method.

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Last Updated: September 5, 2001
Document Number: 01072303_e

Q.

In NC308WA V.3.00 Release 1, the "enter" instruction is output at the start of the function. But because it is not output in V.3.10 Release 2, the stack argument cannot be correctly referenced from the in-line assembly description. How can I generate the "enter" instruction in this case?

A.

The NC308WA optimization has been enhanced so that unnecessary "enter" instructions are not output. As the compiler does not consider the processing contents of the in-line assembler statement, if an argument or automatic variable is not referenced at least once somewhere other than within #pragma ASM to #pragma ENDASM, or asm(), the "enter" instruction is considered not necessary and is not output.

NC308WA supports the following statement method for referencing C-language variables in in-line assembly: asm("...$$..." or "...$@...", variable name);.
The compiler recognizes whether or not a variable is being used, and the "enter" instruction is generated as necessary. Other methods used for referencing C-language variables will result in unreliable operations of the specified function or possible loss of compatibility between compiler versions. Do not use other methods to reference variables or arguments or to set return values for functions.

We recommend the following statement method:
[Example 1]

```
------------------------------------------------
void memset(char *p, char c, unsigned short n)
{
  asm(" PUSHM  A1,R0,R3   ");    // must exit from register to be used
  asm(" MOV.L  $$[FB],A1  ", d); // transfer argument d to A1
  asm(" MOV.B  $$[FB],R0L ", c); // transfer argument c to ROL
  asm(" MOV.W  $$[FB],R3  ", n); // transfer argument n to R3
  asm(" SSTR.B            ");
  asm(" POPM   A1,R0,R3   ");    // original register
}
------------------------------------------------
```

[Example 2]

```
------------------------------------------------
void memset(char *p, char c, unsigned short n)
{
  asm(" PUSHM  A1,R0,R3 ");    // must exit from register to be used
  asm(" MOV.L  $@,A1    ", d); // transfer argument d to A1
  asm(" MOV.B  $@,R0L   ", c); // transfer argument c to ROL
  asm(" MOV.W  $@,R3    ", n); // transfer argument n to R3
  asm(" SSTR.B          ");
  asm(" POPM   A1,R0,R3 ");    // return to original register
}
------------------------------------------------
```

As an automatic variable, $$ substituted in the offset from the FB register value.
As an external variable, $$ replaces the symbol of the variable.
As a register variable, $$ replaces the register name.

$@, on the other hand, becomes the substitute for the operand that indicates an automatic, external or register variable. (The compiler automatically determines the type of variable of $@.)

Due to optimization, function arguments and automatic variables may be modified into register variables. However, variables which are used by asm("...$$..." or "...$@...", variable name); will not be modified in any way. For example, even a "$$" you intended to

write as the FB offset of an automatic variable will not become a register variable and be displayed in the register name.

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Last Updated: August 25, 2000
Document Number: 01051004_e

Q.

I was under the assumption that all const declarations were assigned to the ROM sections. But when I specify the constants as shown below, these constants were assigned to data sections. How can I assign the following to ROM sections?

```
const S_TBL *sp_tbl[]={
    p00,  /* pointer to structure */
    p01,  /* pointer to structure */
    p02,  /* pointer to structure */
};
```

A.

To assign the above constants to the ROM section, please specify sp_tbl in the following way:

```
S_TBL *const sp_tbl[]={
    p00,  /* pointer to structure */
    p01,  /* pointer to structure */
    p02,  /* pointer to structure */
};
```

You need to assign p00, p01, and p02 as well as sp_tbl to the ROM section:

```
const S_TBL *const sp_tbl[]={
    p00,  /* pointer to structure */
    p01,  /* pointer to structure */
    p02,  /* pointer to structure */
};
```

[Reference]
When using a const-declaration to a pointer, what is assigned to the ROM will differ depending on the position of the const.

In the following example,

```
const int *i={a,b,c};
```

"a, b, c" will be assigned to the ROM.

But, in the following example,

```
int * const i={a,b,c};
```

"i" will be assigned to the ROM.

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Last Updated: August 25, 2000
Document Number: 01051005_e

Q.

Can I add new functions to the compiler library?

A.

Yes. Please use the following methods. (This example is based on using NC308WA.)

1. Compile the C source file for generating a relocatable file.
   [Example: generating "new.r30"]

   ```
   >nc308 -c new.c
   ```

2. Using Librarian lb308 for adding the relocatable file to the library.
   [Example: adding "new.r30 file" to "nc308 library file"]

   ```
   >lb308 -a nc308lib.lib new.r30
   ```

[Reference]
Please refer to the AS308 User's Manual for details concerning usage of lb308. The AS308 User's Manual can be found in the nc308wa/manual directory on the CD-ROM included with NC308WA. The manual is installed automatically when you install the NC308WA Windows version, so you should be able to find it from the Start Menu.

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Last Updated: August 7, 2000
Document Number: 01051012_e

Q.

I want to execute lmc308 in the following manner, but I can't change the start address. What is the problem?

```
>lmc308 -E 00 test.x30
```

A.

The "-E command option" is for registering the [execute start address]. The execute start address is recorded in digits 5 to 8 of the "S8" recorder in the last line of the Motorola S Format. You cannot change the start address with this option. You will need to use a PROM writer to change the address.

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Last Updated: August 7, 2000
Document Number: 01051013_e

Q.

I want to change a program with the start address as 0xFC0000 to the Motorola S format with the start address as 0x000000. Can I do this?

A.

The Imc308 does not have a function that will change the start address. You will need to do this with a PROM writer.

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Last Updated: July 21, 2000
Document Number: 01051014_e

Q.

I want to declare a combination of bit fields, such as a combination of 3, 10, and 11 bit widths, without leaving blank bits between each field (without padding). How can I do that?

A.

Declare the same variable type with the bit size larger than that of the total number of bits of all the continuing fields. Through this method, you can fill bit field variables without making blank bits (without padding).

[Example program]

```
typedef struct {
    unsigned long   BIT0_9   :10;
    unsigned long   BIT10_20 :11;
    unsigned long   BIT21_23 : 3;
} BIT0_23;
```

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M3T-MR308 (M3T-MR308K, M3T-MR308S) Real-time OS

See Tool News for this product

Last Updated: August 5, 2002

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System Call Interface

- What data is contained in 'extendedinformation(exinf)' of the status reference system call (ref_xxx)?
- What is the return value of a system call (can_wup, wai_flg, twai_flg, pol_flg, rcv_msg, trcv_msg, prcv_msg, pget_blf, pget_blk) which has a return parameter and does not return an E_OK?

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Document Number: 01051175_e

Q.

Is it possible to purchase the MR308S production license only, without purchasing the development kit?

A.

No. You will need to purchase both the production license and development kit.

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Last Updated: December 20, 2000
Document Number: 01051176_e

Q.

My program stopped operating properly after I changed the message size in the mailbox function. Why?

A.

When using the mailbox function, please set the compile option according to the mailbox size, as follows.

1. When specifying the message size as 32
   Add -Dfar_msg=1 to the compile options.
   Add c308mrlm.lib, mr308lm.lib to the link libraries in the link options.
   If c308mr.lib, mr308.lib are included in the options, remove them.

2. When specifying the message size as 16 or when not setting the send data size
   If -Dfar_msg=1 is included in the compile options, remove it.
   Add c308mr.lib, mr308.lib to the link libraries in the link options.
   If c308mrlm.lib, mr308lm.lib are included in the options, remove them.

If the above items are not set in this manner, the snd_msg system call will be called and the program will not work properly.

[How to Change the Compile Options]

- For TM V.3.0 and later versions
  When setting or changing the message-size specification in the MR308 configuration file, you must also add the changes described above to the compile options in TM according to the specifications or changes.
- When not using TM
  When a makefile has been created with the makefile function in the configurator, make sure you re-execute the configuration. This way, the compile options will be automatically revised.

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Last Updated: December 20, 2000
Document Number: 01051177_e

Q.

Assume that I am developing an application program with MR308. When I change the output destination directory during the compile or assemble process (specified options: -dir for compiler, -0 for assembler), MR308 will no longer link the real-time OS kernel module.

A.

If the output directory of the object file is different from the directory in which m308tbl (supplied as an utility program in the MR308 package) operates, and you are specifying an additional directory to the source file during a compile or assemble, or changing the output destination directory; you need to add that output destination directory to the m308tbl option before starting up MR308.

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Last Updated: August 5, 2002
Document Number: 01051178_e

Q.

My program is malfunctioning...

A.

Please check the following items

1. Is the interrupt level set properly?
   OS-independent interrupt > OS-interrupt disable level > OS-dependent interrupt
2. Are you issuing the system call from the OS-independent interrupt?
3. Is your stack size big enough?
   (We recommend using utility stk308 or stkviewer for calculating the task stack size.)
4. Are you ending the task (issue ext_tsk) and leaving loc_cpu or dis_dsp issued? If so, this is the problem. Instead, when issuing loc_cpu or dis_dsp, make sure you then issue unl_cpu or ena_dsp before ending the task (issue ext_tsk).
5. The NMI interrupt or watchdog timer interrupt may be configured as OS-dependent interrupts. These interrupts must be OS-independent interrupts.

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Last Updated: October 20, 1999
Document Number: 01051179_e

Q.

Is there any problem with switching the register bank in a task?

A.

It may cause a program malfunction. Please do not switch the register bank in any task.

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Last Updated: October 20, 1999
Document Number: 01051180_e

Q.

Which register bank, register bank 0 or 1, is used for the task context?

A.

Register bank 0 is used for the context at task start.

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Document Number: 01051181_e

Q.

I want to use the registers of bank 1 in the OS-dependent interrupt handler. How should I describe it?

A.

Registers of bank 1 in the OS-dependent interrupt handler can not be described in C language. You can describe in assembly language only. Describe the interrupt handler entrance and exit as follows:
(Make sure you clear B flag before issuing the ret_int system call.)

```
Example: interrupt:
                fset    B    <--
                        :
                fclr    B    <--
                ret_int      <--
```

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Document Number: 01051182_e

Q.

I want to use registers of bank 1 in the OS-independent interrupt handler. How can I specify it in the configuration file?

A.

Registers of bank 1 can not be specified in the configuration file. Insert declaration "#pragma INTERRUPT/B" after the "id.h" include command in the C language source file.

```
Example: #include <mr308.h>
         #include "id.h"

         #pragma INTERRUPT/B OS-independent interrupt handler function name
```

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Last Updated: October 20, 1999
Document Number: 01051183_e

Q.

Does MR308 perform register bank switching in the kernel?

A.

No, MR308 does not use the register bank switching function in the kernel.

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Document Number: 01051184_e

Q.

During a compile, the "far pointer (implicitly) casted by near pointer" warning comes up concerning the system call in the mailbox functions. Why do I get this warning?

A.

This is probably because the compile option "-Dfar_msg=1", which is required for 32-bit message send, isn't specified. As for the compile options, if the message_size item in the system definitions of the configuration file is specified as "16", or the item has been abbreviated, it will not be output in the makefile created by the configurator. Specify this item to "32" and initiate the configurator with option "-m", in order to have this compile option be output in the makefile.

```
Example: system{
                    :
             message_size = 32 <-- if 16, warning is issued
                    :
         };
                     |<next>
             cfg308 -m configuration file
                     |<next>
                    make
```

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Document Number: 01051185_e

Q.

During a link, the "value is undefined" warning comes up for symbols "__TCB_tmrq_for" and " __TCB_tmrq_back." Why do I get this warning?

A.

This is probably because one of the timeout items is specified as "NO" in the system definitions of the configuration file. Please specify the item to "YES" to remove this warning.
(If you are using any one of the following items, be sure to specify the timeout item to "YES": tslp_tsk, twai_flg, twai_sem, trcv_msk.)

```
Example: system{
                    :
                timeout = YES; <-- if NO, warning is issued
                    :
         };
```

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Document Number: 01051186_e

Q.

Can I use C language standard function "malloc" to allocate memory (variable-size) dynamically with the MR308?

A.

Please do not use "malloc". To allocate the necessary memory size, use a system call which includes the variable-size memorypool function.

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Document Number: 01051187_e

Q.

Can system call of the variable-size memorypool function be issued from a handler (interrupt handler, cyclic handler, alarm handler)?

A.

This system call can only be issued from a task. A handler can only issue a system call using the fixed-size memory pool function.

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Document Number: 01051188_e

Q.

In the variable-size memorypool function, there are 4 types of memory block sizes available based on the value (max_memsize) specified in the configuration file. Please let us know the equation for determining these 4 block sizes.

A.

The following equations define the block sizes:

a = (((max_memsize+(X-1))/64)+1) * 8
b = a * 2
c = a * 4
d = a * 8

max_memsize: the value specified in the configuration file
X: data size for block control (8 in MR308)

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Document Number: 01051189_e

Q.

According to the manual, it's not necessary to describe the ext_tsk system call for each task. Should I describe this system calls for tasks if I want to reuse these source codes in other applications?

A.

Extra code will be output concerning each ext_tsk system call, but this will not affect actual operations.

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Document Number: 01051190_e

Q.

Will the cyclic handler begin processing in the interrupt disable state? Or does it start processing in the interrupt enable state?

A.

The cyclic handler is enabled by an interrupt which has an interrupt level higher than that of the MR308 system clock interrupt. (Starts at I flag = 1, IPL = system clock Interrupt Priority Level.)

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Last Updated: March 20, 2001
Document Number: 01051191_e

Q.

When using the MR308 OS-independent interrupt and enabling the multiple interrupts option, I enable it with "#pragma INTERRUPT /E".
Is there a similar option for enabling multiple interrupts when using in the OS-dependent interrupt? I want to use the C language to write the source file.

A.

MR308 is not equipped with a function such as "#pragma", which enables multiple interrupts for the OS-dependent interrupt. Use the following to describe the area in which you want to enable multiple interrupts.

```
      #include <mr308.h>
      #include "id.h"
void inthand (void)     /* OS-dependent interrupt handler */
      {
         /* multiple-interrupt inhibited area */
            asm("    FSET I");
         /* multiple-interrupt enabled area */
            asm("    FCLR I");        <--- delete if there are no interrupt-inhibit
areas after this point.
         /* multiple-interrupt inhibited area */
       }
```

Cyclic handlers and alarm handlers are in the multiple-interrupt enabled state.

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Document Number: 01051192_e

Q.

What data is contained in 'extendedinformation(exinf)' of the status reference system call (ref_xxx)?

A.

'extendedinformation(exinf)' is always undefined.

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Document Number: 01051193_e

Q.

What is the return value of a system call (can_wup, wai_flg, twai_flg, pol_flg, rcv_msg, trcv_msg, prcv_msg, pget_blf, pget_blk) which has a return parameter and does not return an E_OK?

A.

The return parameter value is undefined in all cases other than E_OK.

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Document Number: 01051194_e

Q.

I would like to make my own makefile for the system I use with the MR308 (in other words, not use the makefile created by the configurator). Is there anything I should be aware before doing this?

A.

Be sure to describe the following 4 items in the makefile:

- **MR308 Library Specifications**
  The MR308 library varies according to the message size of the mailbox function. When using the 32-bit message size, you must specify libraries mr308lm.lib and c308mrlm.lib. When using the 16-bit message size, libraries mr308.lib and c308mr.lib must be specified.
- **Compile Option Specifications**
  You must pay close attention to the specified compile options when compiling a file using a system call related to the mailbox functions. When using 32-bit message size, specify compile option "-Dfar_msg=1". This option does not need to be specified when using the 16-bit message size.
- **Assemble Option Specifications**
  Make sure to specify assemble option "-F" when assembling the source file, described in the assemble language, which issues the system call.
- **Process Before Linking**
  Before executing a link, make sure to execute the following two processes, in the order as are listed.
  1. mr308tbl
  2. as308 mrtable.a30
  MR308 comes equipped with the mr308tbl utility. Execute it in the directory where the r30 file is output. Once mr308tbl is executed, the mrtable.a30 file will be created. After these two processes are completed, execute the link including the mrtable.r30 file.

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Document Number: 01051195_e

Q.

Is the initial value of the eventflag bit pattern undefined?

A.

The initial value is 0 (zero).

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Document Number: 01051196_e

Q.

I want to use the high-speed interrupt of the M16C chip for the OS-independent interrupt handler. How can I specify it in the configuration file?

A.

This high speed interrupt can not be specified in the configuration file. Insert declaration "#pragma INTERRUPT/B/F" after the "id.h" include command in the C language source file. In order to use the high-speed interrupt effectively, use registers of bank 1 during the interrupt. Please note that this interrupt can not be used for the OS-dependent interrupt handler.

```
Example: #include <mr308.h>
         #include "id.h"

         #pragma INTERRUPT/B/F OS-independent interrupt handler function name
```

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Last Updated: April 5, 2001
Document Number: 01051197_e

Q.

Renesas provides two versions of MR308: MR308K and MR308S. What are the differences between them?

A.

Version	MR308K	MR308S
Product Description	Development Kit Version of MR308	Production Version of MR308
Software Configuration	Contains complete software kit for application program development.	Only includes source file program. * User cannot develop a MR308 application system with this package alone.
License Conditions	MR308K can be used in up to 10 target systems by the purchaser.	Unlimited number of run-time licenses for original purchaser.
No. of hosts permitted	Development must be limited to one PC (IBM PC/AT compatible) or one EWS.	Can be used for development on up to a total of 20 PCs (IBM PC/AT compatible) and EWS.
Other	MR308S is mainly purchased for customers who intend to use it for mass production of systems with a pre-embedded OS. Therefore, the purchase of MR308K is considered a prerequisite.	

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M3T-PD308SIM Simulator Debugger

See Tool News for this product

Last Updated: June 5, 2003

- I get the following error when I download a program with M3T-PD308SIM or M3T-PD30SIM: (June 5, 2003)*New!*

  "ERROR 6200: SYMBOL file is illegal."

- I want to setup interval data sampling using the OnTimer function the CB308SIM. Please tell me the LSB for the interval to be set in _win_timer_set. The manual indicates milliseconds (ms). However, based on my tests so far, when I set 1000ms or more, I have no problem, but when I set 10ms as the interval, the actual interval is around 50ms. (Feb. 20, 2002)

- To execute a source compile on the M3T-NC308WA, I treat the enumerator by the generated code modifying option "-fCE" as an unsigned char type, rather than int type. However, when I reference the enumerator type variable with the M3T-PD308SIM (display by moving the mouse curser to the variable), it displays the form in 16 bits instead. Why? (Dec. 20, 2001)

- How should I set Timer A0 for MR308 when executing a program, which embeds MR308, on PD308SIM? (Oct. 5, 2001)

- How do I reference local bit symbols with PD308SIM? (Sep. 5, 2001)

- When loading an absolute module file (test.x30), which generated and created a TM project, to PD308SIM in the following directory structure, the start-up program ncrt0.a30 file and C source file do not appear. How can I get the source file to be displayed? (Nov. 6, 2000)

```
C:\File\test.tmi
C:\File\test.tmk                      <- TM makefile
C:\File\c\                            <- C source program
C:\File\h\                            <- header file
C:\File\asm\ncrt0.a30, sect308.inc    <- assembly source program
C:\File\abs\test.x30                  <- absolute module file
```

- I get an error and I can not use the custom commands when I:

  1. Use the OPEN button in the script window to open a *.scr file which is not in the same directory as PDxx.EXE,
  2. then execute a custom command, in the script window, which exists in the same directory as PDxx.EXE does.

  I realize I can execute custom commands by placing the *.scr file in the same directory as the PDxx.EXE, but in this case having to put both in the same directory is not convenient. (Nov. 19, 1999)

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Last Updated: June 5, 2003
Document Number: 03052001_e

Q.

I get the following error when I download a program with M3T-PD308SIM or M3T-PD30SIM:

"ERROR 6200: SYMBOL file is illegal."

A.

M3T-PD308SIM and M3T-PD30SIM do not support _Bool type debugging.
To use _Bool with a program, specify either -gbool_to_char or -gBTC as the debug option for the compile.

More information concerning the use of Bool-type debugging for programs can be found in the compiler release notes (for either M3T-PD308SIM or M3T-PD30SIM). The most current product release notes are available for each product on the download page for online upgrades.

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Last Updated: February 20, 2002
Document Number: 02020505_e

Q.

I want to setup interval data sampling using the OnTimer function the CB308SIM. Please tell me the LSB for the interval to be set in _win_timer_set. The manual indicates milliseconds (ms). However, based on my tests so far, when I set 1000ms or more, I have no problem, but when I set 10ms as the interval, the actual interval is around 50ms.

A.

In Windows 98/95, the shortest interval available when generating timer events is around 55ms. Therefore, if you are using Windows 98/95, even if you set the interval in _win_timer_set to 10ms, the timer events will be generated every 55ms or so.

We think, in Windows 2000, the interval depends on the PC environment (motherboard, etc.).
In addition, when a timer event is generated, the timer message goes to the message queue in the application. The application doesn't necessarily receive the timer message at the specified interval, and Windows operations may cause a delay. When setting data sampling, etc., please keep in mind that the timer event intervals are not accurate.

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Last Updated: December 20, 2001
Document Number: 01120505_e

Q.

To execute a source compile on the M3T-NC308WA, I treat the enumerator by the generated code modifying option "-fCE" as an unsigned char type, rather than int type. However, when I reference the enumerator type variable with the M3T-PD308SIM (display by moving the mouse curser to the variable), it displays the form in 16 bits instead. Why?

A.

The enumerator type variables are treated as 2-byte variables by the M3T-PD308SIM. Even if you specify the enumerator as a 1-byte variable in the compiler, the enumerator type variable will be displayed in 2 bytes. However, you can reference the variable correctly by casting and registering it in the C-watch window, as done in the program below.

```
[Example Program]
---------------------------------
    typedef enum eTag {
      ENUM0=0,
      ENUM1,
      ENUM2,
         ...
    } ENUMTYPE;

    ENUMTYPE enEnum;
---------------------------------

[Example of Registration in C Watch Window]
---------------------------------
(eTag)(unsigned char)enEnum
---------------------------------
```

When registering in the C watch window, make sure you cast with [enumerator tag (shown as "eTag" above)]. Do not cast with the type you declared in typedef.
For more details, please refer to MAEC TOOL NEWS "PD32RSIM, PD308SIM, PD30SIM, PD79SIM, PD77SIM, PD38SIM, PD32000, PD32R, PD308, PD30, PD79, PD77, PD38, PD308M, and PD30M Precautions" issued on August 1, 2001.

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Last Updated: October 5, 2001
Document Number: 01092001_e

Q.

How should I set Timer A0 for MR308 when executing a program, which embeds MR308, on PD308SIM?

A.

Follow the I/O script sample program included in PD308SIM: Load the sample program for the MR308 timer (mr.ios) in the I/O window. Refer to "Introducing I/O Script Sample Programs" (22KB, 11 pages) in the manual for more details.

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Last Updated: September 5, 2001
Document Number: 01072310_e

Q.

How do I reference local bit symbols with PD308SIM?

A.

To reference local bit symbols with PD308SIM while assembling with as308, specify the "-S" or "-SM" option.
Note that local bit symbols can only by referenced when the program being executed is stopped in the source file which defines the symbols.

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Last Updated: November 6, 2000
Document Number: 01050925_e

Q.

When loading an absolute module file (test.x30), which generated and created a TM project, to PD308SIM in the following directory structure, the start-up program ncrt0.a30 file and C source file do not appear. How can I get the source file to be displayed?

```
C:\File\test.tmi
C:\File\test.tmk                      <- TM makefile
C:\File\c\                            <- C source program
C:\File\h\                            <- header file
C:\File\asm\ncrt0.a30, sect308.inc    <- assembly source program
C:\File\abs\test.x30                  <- absolute module file
```

A.

There are two ways to display the source file:

[Method 1]
Set a path to "asm" directory and "c" directory in the PD308SIM "Environ-Path" menu.
[Method 2]
Modify the TM project so that test.x30 is created in the "File" directory.

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M3T-PD308F Emulator Debugger for M32C/80 Series

See Tool News for this product

Last Updated: June 7, 2004

- In what circumstances should I check the following box in the MCU tag in the Init dialog of the emulator debugger? (June 7, 2004) NEW
  - ☐ Debug the program using the Watchdog Timer.
- I want to debug a program that uses the MCU watchdog timer. Do I need to set the debugger to do so? (June 7, 2004) NEW
- When I am debugging my program, sometimes I can't open Time Measurement Window. How can I measure the interval time? (Apr. 5, 2004)
- I can't start up my debugger with the USB interface even though I have used it successfully before. What's the problem? (Feb. 5, 2004)
- I can't install the USB Driver successfully. What could be the problem? (Feb. 5, 2004)
- I'm getting a slanted lattice pattern in the history display in the [MR Trace Window] and in the graph display in the [MR Analyze Window]. What does this display indicate? It appears that there is an error in the wave line display measurements. Why? (Apr. 5, 2004)
- The ROM in which the target program has been written is mounted on the user target board. I set the MCU to the microprocessor mode. I am trying to execute the program, but it does not run normally and be debugged. What could be the problem? (July 22, 2003)
- To execute a source compile on the M3T-NC308WA, I treat the enumerator by the generated code modifying option "-fCE" as an unsigned char type, rather than int type. However, when I reference the enumerator type variable with the M3T-PD308F (display by moving the mouse curser to the variable), it displays the form in 16 bits instead. Why? (May. 10, 2002)

M32C/80,M16C/80 Series FAQ Index | FAQ Index

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Last Updated: June 7, 2004
Document Number: 04051004_e

Q.

In what circumstances should I check the following box in the MCU tag in the Init dialog of the emulator debugger?

☐ Debug the program using the Watchdog Timer.

A.

Check this box if the user program uses the MCU watchdog timer function. Leave the box unchecked when debugging a user program that does not use the watchdog timer.

Checking the above box instructs the emulator to periodically write to the watchdog timer start register and refresh the watchdog timer when the user program is temporarily stopped (by pushing the stop button or executing a step). In other words, by checking the "Debug the program using the Watchdog Timer" Box, you can prevent the watchdog timer from generating an interrupt during the debug operation, even when the target is not running.
Please note that if you check this box when debugging a program that does not use the watchdog timer, the program will not run properly.

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Last Updated: June 7, 2004
Document Number: 04051003_e

Q.

I want to debug a program that uses the MCU watchdog timer. Do I need to set the debugger to do so?

A.

Yes. Please check the following box in the MCU tag in the Init dialog of the emulator debugger:

☐ Debug the program using the Watchdog Timer.

Checking the above box instructs the emulator to periodically write to the watchdog timer start register and refresh the watchdog timer when the user program is temporarily stopped (by pushing the stop button or executing a step). This will enable you to prevent the watchdog timer from generating an interrupt during the debug operation.

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Last Updated: April 5, 2004
Document Number: 04030502_e

Q.

When I am debugging my program, sometimes I can't open Time Measurement Window. How can I measure the interval time?

A.

Time Measurement Window cannot be opened when any of the following windows are open.

- Trace Point Setting Window
- MR Trace Window
- MR Analyze Window
- Task Trace Window
- Task Analyze Window

Make sure all of these windows are closed before trying to open Time Measurement Window.

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Last Updated: April 5, 2004
Document Number: 03072230_e

Q.

I'm getting a slanted lattice pattern in the history display in the [MR Trace Window] and in the graph display in the [MR Analyze Window]. What does this display indicate? It appears that there is an error in the wave line display measurements. Why?

A.

The slanted lattice pattern indicates that the interrupt is an "OS-independent interrupt".

In the [MR Trace Window] and [MR Analyze Window] of M3T-PD308F(*) and M3T-PD308, the ending timing of an OS-independent interrupt is undetectable and therefore assumed to occur when another interrupt generation is detected. Therefore, generation of an OS-independent interrupt process results in faulty information concerning the OS-independent interrupt and the sections that are affected by its generation (the tasks interrupted by the OS-independent interrupt).

* In the M3T-PD308F, this problem has been corrected in its V.3.20 Release 1 and all the later versions. Please download the latest version from our Online Upgrade Site and upgrade your product to it.

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Last Updated: July 22, 2003
Document Number: 03062002_e

Q.

The ROM in which the target program has been written is mounted on the user target board. I set the MCU to the microprocessor mode. I am trying to execute the program, but it does not run normally and be debugged.
What could be the problem?

A.

Please confirm the following items.

1. **Are the user target and emulator properly connected?**
   Confirm the connection for the following signals: address, data, CS0*-CS3*, RD*, WR*(WRL*), BHE*(WRH*), CNVSS, BYTE, RDY*, HOLD*, NMI*.

   When you start up M3T-PD308 or M3T-PD308F, check the signal level of the user target in the EMEM dialog to make sure it is recognizing the emulator.
   Do the following signal levels in the EMEM dialogue match the user target?

   CNVSS, BYTE, RDY*, HOLD*, NMI*

2. **After M3T-PD308 or M3T-PD308F is started up and the SFRs (special function registers) to access the external ROM are set, are the contents of the external ROM correctly displayed in the memory window?**
   Check the following settings in the debugger memory window:
   - Processor mode bit (PM00, PM01)
   - R/W mode select bit (PM02)
   - External memory space mode bit (PM10, PM11)
   - External space data bus width select bit (DS0-DS3)
   - External space wait bit (WCR0-WCR7)

3. **Are the contents of the external ROM being referenced?**
   Specify the external ROM area address in the memory window and display the contents.
   If the contents cannot be referenced, try the following procedures:
   - Lower the operating frequency.
   - Increase the main clock division rate.
   - Increase the number of waits.

   Note that when using the emulator, the user target board and the MCU in the emulator are connected through a flexible cable that requires approximately 8 ns more for setup than with the actual MCU on the actual board.

4. **Was the reset vector value set before executing the target program?**
   When connecting the emulator, the reset vector area must be selected on the emulator side, regardless of the setting in the EMEM dialogue. Before executing the target program, make sure you set the reset vector in the memory window.

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Last Updated: May 10, 2002
Document Number: 02012101_e

Q.

To execute a source compile on the M3T-NC308WA, I treat the enumerator by the generated code modifying option "-fCE" as an unsigned char type, rather than int type. However, when I reference the enumerator type variable with the M3T-PD308F (display by moving the mouse curser to the variable), it displays the form in 16 bits instead. Why?

A.

The enumerator type variables are treated as 2-byte variables by the M3T-PD308F. Even if you specify the enumerator as a 1-byte variable in the compiler, the enumerator type variable will be displayed in 2 bytes. However, you can reference the variable correctly by casting and registering it in the C-watch window, as done in the program below.

```
[Example Program]
---------------------------------
    typedef enum eTag {
      ENUM0=0,
      ENUM1,
      ENUM2,
         ...
    } ENUMTYPE;

    ENUMTYPE enEnum;
---------------------------------

[Example of Registration in C Watch Window]
---------------------------------
(eTag)(unsigned char)enEnum
---------------------------------
```

When registering in the C watch window, make sure you cast with [enumerator tag (shown as "eTag" above)]. Do not cast with the type you declared in typedef.
For more details, please refer to MAEC TOOL NEWS "PD32RSIM, PD308SIM, PD30SIM, PD79SIM, PD77SIM, PD38SIM, PD32000, PD32R, PD308, PD30, PD79, PD77, PD38, PD308M, and PD30M Precautions" issued on August 1, 2001 (It is applied also to PD308F).

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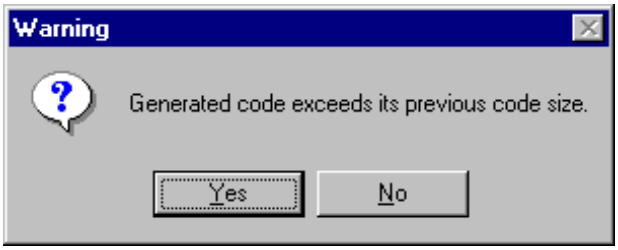
M3T-PD308 Emulator Debugger for M32C/80, M16C/80 Series

See Tool News for this product

Last Updated: June 7, 2004

- The Emulator Debugger M3T-PD308 comes with the following MCU files: M30800.MCU, M30803.MCU and M30835.MCU. Which one should I select? (June 7, 2004) NEW
- In what circumstances should I check the following box in the MCU tag in the Init dialog of the emulator debugger? (June 7, 2004) NEW
  - ☐ Debug the program using the Watchdog Timer.
- I want to debug a program that uses the MCU watchdog timer. Do I need to set the debugger to do so? (June 7, 2004) NEW
- When I am debugging my program, sometimes I can't open Time Measurement Window. How can I measure the interval time? (Apr. 5, 2004)
- I can't start up my debugger with the USB interface even though I have used it successfully before. What's the problem? (Feb. 5, 2004)
- I can't install the USB Driver successfully. What could be the problem? (Feb. 5, 2004)
- I'm getting a slanted lattice pattern in the history display in the [MR Trace Window] and in the graph display in the [MR Analyze Window]. What does this display indicate? It appears that there is an error in the wave line display measurements. Why? (Apr. 5, 2004)
- Can Emulation Pod M30800T-RPD-E (discontinued product) for M16C/80 Group be used to debug MCUs with RAM 20KB or RAM 24KB for M16C/80 Group? (July 22, 2003)
- The ROM in which the target program has been written is mounted on the user target board. I set the MCU to the microprocessor mode. I am trying to execute the program, but it does not run normally and be debugged. What could be the problem? (July 22, 2003)
- How do you set a breakpoint in the external ROM area code? (Jan. 7, 2003)
- I just upgraded my PC operating system to Windows 2000 and the emulator debugger I am using won't work anymore. I am using the Parallel Interface Board (PCA4202G02) to connect the PC and emulator. What's the problem? (Dec. 20, 2002)
- I want to setup interval data sampling using the OnTimer function the CB308. Please tell me the LSB for the interval to be set in _win_timer_set. The manual indicates milliseconds (ms). However, based on my tests so far, when I set 1000ms or more, I have no problem, but when I set 10ms as the interval, the actual interval is around 50ms. (Feb. 20, 2002)
- To execute a source compile on the M3T-NC308WA, I treat the enumerator by the generated code modifying option "-fCE" as an unsigned char type, rather than int type. However, when I reference the enumerator type variable with the M3T-PD308 (display by moving the mouse curser to the variable), it displays the form in 16 bits instead. Why? (Dec. 20, 2001)
- Can PCA4202G02, the dedicated parallel-interface board for emulator systems PC4701 and PC4816B, be used with Windows 2000/NT 4.0? (Nov. 5, 2001)
- How do I reference local bit symbols with PD308? (Sep. 5, 2001)
- I get this warning when I modify the src code as follows.
  Is this perhaps because the conversion to an instruction is not optimized in this case?(Jun. 20, 2001)



MOV.W #0010H,A0 -> MOV.W #0030H,A0

- Is there anything I need to know about using PD308 with a LAN connection? (Sep. 20, 2000)

- I plan on adding a LAN card to my notebook PC for connection with the Renesas emulator. Does Renesas recommend certain LAN cards or have operation tests for specific LAN cards? (Sep. 20, 2000)

- Is a hub necessary even when I use the emulator in a stand-alone environment? I want to connect my PC and PC4701HS directly. (Sep. 20, 2000)

- Can I use a LAN connection with my notebook PC? If so, is there any special setup I need to perform? (Sep. 20, 2000)

- I tried to setup an event in the PD308 time measurement window. But I can't select the Fetch button, why not? (Dec. 20, 2002)

- When I use the execution of the specified address as measurement trigger in the interval time measurement function, I need to use the CPU address-read action for the actual trigger event. At this time, the debugger will detect this action at the CPU address pre-fetch stage (before the CPU executes this instruction). Will the measurement be taken correctly? (Aug. 25, 2000)

- Does the PDxx operation affect the emulator MCU execution speed or conditions? I would like to know how the PC4701 reads out data from the emulation MCU in real-time. (Jul. 5, 2000)

- How can I find out the type and license ID of the emulator debuggers included in the CD-ROM that comes bundled with Emulators PC4701U/PC4701M? (July 22, 2003)

- I am using the PDxx emulator debugger on my notebook PC. And I use the serial interface for the emulator connection. Sometimes, while I am using the RAM monitor window, my target program hangs up. Does the PDxx debugger have a compatibility problem with my PC? Do I have to have a special setting for my OS version? (Jul. 5, 2000)

- The following functions in "PD308 V.1.10 Release 1" do not correctly work. (Jun. 5, 2000)
  - Values of C variables displayed in the C Watch Window is not correct.
  - C Watch Window display data is unable to display in real-time.
  - Values of C variables displayed with the PRINT command in the Script Window is not correct.

- 1. When using M3T-PDxx (M3T-PD308, M3T-PD30, M3T-PD79, M3T-PD77, M3T-PD38) with PC4701U/PC4701M, the emulator serial number must be input during the M3T-PDxx installation. But what happens when I install using a PC4701U/PC4701M with a different serial number?
  2. Can I use the M3T-PDxx bundled in the "Debug Tools" (formerly called "PDxx service pack") for the PC4701U/PC4701M with any other PC4701 emulator besides PC4701U/PC4701M? (July 22, 2003)

- I get an error and I can not use the custom commands when I:
  1. Use the OPEN button in the script window to open a *.scr file which is not in the same directory as PDxx.EXE,
  2. then execute a custom command, in the script window, which exists in the same directory as PDxx.EXE does.

  I realize I can execute custom commands by placing the *.scr file in the same directory as the PDxx.EXE, but in this case having to put both in the same directory is not convenient. (Nov. 19, 1999)

- I want to refer to the data at address 0x46x and 0x500 from the RAM monitor window, but because the real-time RAM monitor function specifies that the memory must continually be 1K bytes, I can not refer to both at the same time. Is there any way to separate the RAM monitor area into sections? (Nov. 19, 1999)

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Last Updated: June 7, 2004
Document Number: 04051005_e

Q.

The Emulator Debugger M3T-PD308 comes with the following MCU files: M30800.MCU, M30803.MCU and M30835.MCU. Which one should I select?

A.

Select the MCU file that corresponds to the emulation pod you are using, as described in the list below.

Emulation Pods and Corresponding MCU Files:

Emulation Pod	MCU File
M30800T-RPD-E (discontinued product)	M30800.MCU
M30803T-RPD-E	M30803.MCU
M30830T-RPD-E	M30835.MCU

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Last Updated: July 22, 2003
Document Number: 03070701_e

Q.

Can Emulation Pod M30800T-RPD-E (discontinued product) for M16C/80 Group be used to debug MCUs with RAM 20KB or RAM 24KB for M16C/80 Group?

A.

No, M30800T-RPD-E (discontinued product) cannot be used for debugging MCUs with RAM 20KB or RAM 24KB for M16C/80 Group. Please use M30803T-RPD-E. You need to select M30803.MCU for MCU file, but no need to modify the file. MCU files exist on the directory where M3T-PD308 has been installed. (Exa: C:\MTool\PD308\McuFiles)

Emulation Pods and Corresponding MCUs

Product Name	Corresponding MCU
M30800T-RPD-E (discontinued product)	with RAM 10KB for M16C/80 Group
M30803T-RPD-E	with RAM 10KB, RAM 20KB, RAM 24KB for M16C/80 Group

If you would like to upgrade from M30800T-RPD-E (discontinued product) to M30803T-RPD-E, please contact the Tool Technical Support Desk.

Click HERE for upgrade information.

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Last Updated: January 7, 2003
Document Number: 02122001_e

Q.

How do you set a breakpoint in the external ROM area code?

A.

A software breakpoint can be used when the external ROM area is assigned to the emulation memory, as explained below.

- When starting up the M3T-PD308, select the Emulation Memory tab in the Emem dialog.
- Set the following in the Emulation Memory Allocate Group Box

  Bank area : specify the bank address in which the corresponding area is assigned.
  Length area : specify a size that includes the corresponding area.
  Map area : specify "INTERNAL"
- After M3T-PD308 begins operating, download the code.

* For more details on how to set a breakpoint, refer to following: M3T-PD308 Help menu a [Emem Dialog] a [Emulation Memory Tab].

[Supplement]
You can also set a hardware breakpoint (detect a memory read access of the code's address) in the external ROM area code. However, this will cause an event to occur when a prefetch is detected as well.

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Last Updated: December 20, 2002
Document Number: 02120501_e

Q.

I just upgraded my PC operating system to Windows 2000 and the emulator debugger I am using won't work anymore. I am using the Parallel Interface Board (PCA4202G02) to connect the PC and emulator. What's the problem?

A.

In order to use PCA4202G02 you need to install the device driver.
The device driver is not installed in any OS's other than Windows2000/Windows NT. After upgrading your OS, make sure you install M3T-PDxx (M3T-PD30, M3T-PD308, M3T-PD79, M3T-PD77, M3T-PD38).
The device driver for PCA4202G02 is istalled together with M3T-PDxx.

In addition, when using PCA4202G02 with Windows NT 4.0/2000, you need to register the top address of the I/O addresses (7 bytes) used by PCA4202G02 in the Windows register information. Use the utility setPca4202.exe, which is included with M3T-PDxx, and register the top I/O address in the register information. setPca3202.exe is stored in the Drivers directory within the M3T-PDxx install directory.

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Last Updated: February 20, 2002
Document Number: 02020506_e

Q.

I want to setup interval data sampling using the OnTimer function the CB308. Please tell me the LSB for the interval to be set in _win_timer_set. The manual indicates milliseconds (ms). However, based on my tests so far, when I set 1000ms or more, I have no problem, but when I set 10ms as the interval, the actual interval is around 50ms.

A.

In Windows 98/95, the shortest interval available when generating timer events is around 55ms. Therefore, if you are using Windows 98/95, even if you set the interval in _win_timer_set to 10ms, the timer events will be generated every 55ms or so.

We think, in Windows 2000, the interval depends on the PC environment (motherboard, etc.).
In addition, when a timer event is generated, the timer message goes to the message queue in the application. The application doesn't necessarily receive the timer message at the specified interval, and Windows operations may cause a delay. When setting data sampling, etc., please keep in mind that the timer event intervals are not accurate.

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Last Updated: December 20, 2001
Document Number: 01120504_e

Q.

To execute a source compile on the M3T-NC308WA, I treat the enumerator by the generated code modifying option "-fCE" as an unsigned char type, rather than int type. However, when I reference the enumerator type variable with the M3T-PD308 (display by moving the mouse curser to the variable), it displays the form in 16 bits instead. Why?

A.

The enumerator type variables are treated as 2-byte variables by the M3T-PD308. Even if you specify the enumerator as a 1-byte variable in the compiler, the enumerator type variable will be displayed in 2 bytes. However, you can reference the variable correctly by casting and registering it in the C-watch window, as done in the program below.

```
[Example Program]
---------------------------------
    typedef enum eTag {
      ENUM0=0,
      ENUM1,
      ENUM2,
         ...
    } ENUMTYPE;

    ENUMTYPE enEnum;
---------------------------------

[Example of Registration in C Watch Window]
---------------------------------
(eTag)(unsigned char)enEnum
---------------------------------
```

When registering in the C watch window, make sure you cast with [enumerator tag (shown as "eTag" above)]. Do not cast with the type you declared in typedef.
For more details, please refer to MAEC TOOL NEWS "PD32RSIM, PD308SIM, PD30SIM, PD79SIM, PD77SIM, PD38SIM, PD32000, PD32R, PD308, PD30, PD79, PD77, PD38, PD308M, and PD30M Precautions" issued on August 1, 2001.

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Last Updated: November 5, 2001
Document Number: 01101901_e

Q.

Can PCA4202G02, the dedicated parallel interface board for emulator systems PC4701 and PC4816B, be used with Windows 2000/NT 4.0?

A.

Yes. Although there are no restrictions, the top address of the I/O address (7 bytes) used by PCA4202G02 must be registered in the Windows registry (PCA4202G02 I/O address is set to 100h at time of shipment.).
When the following conditions apply, use the Utility program setPca4202.exe that comes with M3T-PDxx. Register the top address of the I/O address (7 bytes), which is used by PCA4202G02, in the registry information.

Conditions:

- When using M3T-PDxx for the first time.
- When the set I/O address (+7 bytes) conflicts with the address of another device.

The setPca4202.exe is located in the "Drivers" directory within the directory installed by M3T-PDxx. (Example: C:\mtool\pdxx\drivers)

For more details, please refer to the Setup Section in the M3T-PDxx User's Manual: Proprietary parallel communication with emulators by Windows 2000/NT 4.0.

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Last Updated: September 5, 2001
Document Number: 01072311_e

Q.

How do I reference local bit symbols with PD308?

A.

To reference local bit symbols with PD308 while assembling with as308, specify the "-S" or "-SM" option.
Note that local bit symbols can only by referenced when the program being executed is stopped in the source file which defines the symbols.

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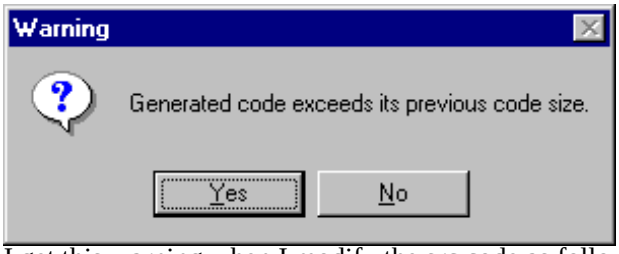
Last Updated: June 20, 2001
Document Number: 01060501_e

Q.



I get this warning when I modify the src code as follows:

MOV.W #0010H,A0 -> MOV.W #0030H,A0

Is this perhaps because the conversion to an instruction is not optimized in this case?

A.

Because the line-assemble function does not optimize the assemble code, the code size may change even with the src code conversion. However, you can generate other types of codes, such as short or zero format, by manually specifying the instruction format specifier when inputting the instruction code.

Example: MOV.W:S #0030H,A0

Please refer to the software manual for more details concerning the instruction formats.

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Last Updated: September 20, 2000
Document Number: 01050909_e

Q.

Is there anything I need to know about using PD308 with a LAN connection?

A.

Please be aware of the following points:

1. Before connecting PD308 with the LAN, make sure you set the emulator IP address and download the firmware using the serial connection.

2. When connecting the LAN on Windows 98, you will need to setup the following registry.
   [Registry Setup for Windows 98]

   Location: "HKEY_LOCAL_MACHINE\System\CurrentControlSet\Services\VXD\MSTCP"
   Entry: "SackOpts"
   Value: "0"

   A utility program for setting up this registry is bundled with PD308 V.1.10 Release 1 or later. For details concerning the utility, please refer to Release Note "Note about LAN communication with emulators on Windows 98" or MESC TOOL NEWS "Information on Windows 98 Hosted Mitsubishi Development Support Tools No. 2" issued on December 1, 1998.

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Last Updated: September 20, 2000
Document Number: 01050884_e

Q.

I plan on adding a LAN card to my notebook PC for connection with the Renesas emulator. Does Renesas recommend certain LAN cards or have operation tests for specific LAN cards?

A.

We don't specify certain LAN cards, but we suggest you select the LAN card based on what works best with your PC.

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Last Updated: September 20, 2000
Document Number: 01050885_e

Q.

Is a hub necessary even when I use the emulator in a stand-alone environment? I want to connect my PC and PC4701HS directly.

A.

We recommend you connect PC4701HS through a network (hub). It is possible to connect the PC and PC4701HS directly, without passing through a hub, but you will need to use either a 10BASE-T cross cable or a 10BASE-T cross conversion cable.
For more details, refer to the MESC TOOL NEWS "Information on Communications Using PD30, PD38, and PD77" issued on June 16, 1998.

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Last Updated: September 20, 2000
Document Number: 01050886_e

Q.

Can I use a LAN connection with my notebook PC? If so, is there any special setup I need to perform?

A.

Yes, as long as your notebook PC has a LAN interface and TCP/IP on your Windows environment, you won't need to do anything else. Make sure you connect PC4701HS to a network (hub).

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Last Updated: December 20, 2002
Document Number: 01050910_e

Q.

I tried to setup an event in the PD308 time measurement window. But I can't select the Fetch button, why not?

A.

The Fetch button cannot be specified as an event in PD308. To work around this, you need to use an address read detection that will access the target code. However, in this case an event may occur due to a pre-fetch detection as well.

[Reference]
M16C/80 Series MCUs do not have a debug function for detecting a Fetch event, as indicated by the M16C/80 Series MCU specifications. Therefore, a Fetch event cannot be specified in the H/W break or time measurement of the PD308 debug functions.

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Last Updated: August 25, 2000
Document Number: 01050928_e

Q.

When I use the execution of the specified address as measurement trigger in the interval time measurement function, I need to use the CPU address-read action for the actual trigger event. At this time, the debugger will detect this action at the CPU address pre-fetch stage (before the CPU executes this instruction). Will the measurement be taken correctly?

A.

Yes, if an address that comes within 8 bytes after a branch instruction is set as the measurement event, the measurement event may be incorrectly detected. In the same manner, if an interrupt occurs right after the specified address, an incorrect measurement event may be detected. Two main examples are provided below for reference.

Example 1)
As shown in the description below, the start address of funcB may be pre-fetched when an instruction is executed near the last address of the adjacent funcA. If the funcB execution time is set for the conditions of the interval time measurement, the measurement of funcB interval time may start with the funcA pre-fetch.

```
void funcA()
{
   :
}
void funcB()
{
   :
}
```

Example 2)
As shown in the description below, when the distance between funcD(); and a=0; is 8 bytes or less, the address for a=0; may be pre-fetched before funcD() is called. When a read for the a=0; address is set as the measurement start event, you may get a double measurement: the pre-fetch before funcD() is called and the pre-fetch before the actual instruction execution after returning from funcD().

```
void funcC()
{
   :
   funcD();
   :     <-- Less than 8 bytes
   a=0;  <-- Set a read of this address as the measurement event
   :
}
```

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Last Updated: July 5, 2000
Document Number: 01050888_e

Q.

Does the PDxx operation affect the emulator MCU execution speed or conditions? I would like to know how the PC4701 reads out data from the emulation MCU in real-time.

A.

The real-time RAM monitor function is performed as described below. This function does not disturb the MCU execution speed and, therefore, does not disturb any user program executions.

1. The emulator monitors the MCU bus.
2. When the specified area is accessed, the emulator reads and stores the MCU bus transaction data.
3. The emulator uploads the stored data to the host PC according to the PDxx debug command.

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Last Updated: July 5, 2000
Document Number: 01050890_e

Q.

I am using the PDxx emulator debugger on my notebook PC. And I use the serial interface for the emulator connection. Sometimes, while I am using the RAM monitor window, my target program hangs up. Does the PDxx debugger have a compatibility problem with my PC? Do I have to have a special setting for my OS version?

A.

Please disable the power management function (or similar function) in your notebook PC. If your power management function is initiated, the RAM monitor function of the debugger will be suspended and the emulator will no longer be able to manage the proper operations.

If your notebook PC does not have a disable feature for the power management, please use an interface connection other than the serial interface. If this still doesn't solve the problem, please use a desktop PC.

The RAM monitor function samples and monitors the target program data transactions of the target system RAM for a certain period. The amount of data transaction between the PC and the emulator depends on this sampling period and the monitoring RAM sizes. The following methods may be effective for working around your problem.

1. Monitoring the necessary area with the ASM watch window (reduces the monitoring RAM sizes)
2. Extending the RAM monitor sampling period

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Last Updated: June 5, 2000
Document Number: 01050929_e

Q.

The following functions in "PD308 V.1.10 Release 1" do not correctly work.
- Values of C variables displayed in the C Watch Window is not correct.
- C Watch Window display data is unable to display in real-time.
- Values of C variables displayed with the PRINT command in the Script Window is not correct.

A.

These problems have been corrected in PD308 V.1.10 Release 2 and all the later versions. Please download the latest version from our Online Upgrade Site and upgrade your PD308.

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Last Updated: July 22, 2003
Document Number: 01050892_e

Q.

1. When using M3T-PDxx (M3T-PD308, M3T-PD30, M3T-PD79, M3T-PD77, M3T-PD38) with PC4701U/PC4701M, the emulator serial number must be input during the M3T-PDxx installation. But what happens when I install using a PC4701U/PC4701M with a different serial number?
2. Can I use the M3T-PDxx bundled in the "Debug Tools" (formerly called "PDxx service pack") for the PC4701U/PC4701M with any other PC4701 emulator besides PC4701U/PC4701M?

A.

1. Yes. As long as the emulator is PC4701U/PC4701M, there is no problem.
2. You can use other products as long as you have the license ID number.
   In order to do this, make sure you select "Installing the debugger for PC4701 Series" at installation.

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Last Updated: November 19, 1999
Document Number: 01050894_e

Q.

I want to refer to the data at address 0x46x and 0x500 from the RAM monitor window, but because the real-time RAM monitor function specifies that the memory must continually be 1K bytes, I can not refer to both at the same time. Is there any way to separate the RAM monitor area into sections?

A.

No, the RAM monitor area can not be divided (based on the PC4701 emulator specification). You will need to arrange the RAM sections so that the address to be refered to is inside the RAM monitor area.

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Last Updated: July 22, 2003
Document Number: 01051029_e

M32C/80, M16C/80 series **M16C/60, 30, 20, 10 series** **79xx series** **77xx series** **740 family**

Q.

How can I find out the type and license ID of the emulator debuggers included in the CD-ROM that comes bundled with Emulators PC4701U/PC4701M?

A.

The following is a list of the 5 emulator debuggers that can be used with Emulators PC4701U/PC4701M.

M32C/80, M16C/80 Series:	M3T-PD308
M16C/60, 30, 20, 10 Series:	M3T-PD30
79xx Series:	M3T-PD79
77xx Series:	M3T-PD77
740 Family:	M3T-PD38

You may find more debugger software in the CD-ROM other than those listed above, but it is unnecessary to install these for PC4701U/PC4701M.

These 5 debuggers can be used free-of-charge in combination with PC4701U/PC4701M. No license ID is required and the M3T-PDxx bundled with PC4701U/PC4701M does not come with a designated License ID.
To use the debuggers that come with Emulator PC4701U/PC4701M, open the [License Selection] dialog during installation, check [Installing the debugger only for PC4701U/M], and enter the serial number of your PC4701U/PC4701M.

For the most recently updated PC4701U/PC4701M emulator debuggers: English Version

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Last Updated: October 5, 2001
Document Number: 01051030_e

M32C/80, M16C/80 series **M16C/60, 30, 20, 10 series** **79xx series** **77xx series** **740 family**

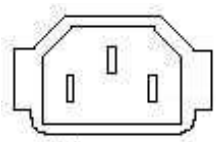
Q.

Can I use the emulator PC4701U, PC4701M and PC4701HS in the People's Republic of China? Do I have to buy any special accessory components?

A.

PC4701U, PC4701M and PC4701HS adapt to worldwide AC voltages: AC 100V - 120V (50/60Hz) and 200 - 240V (50/60Hz). Since the People's Republic of China (referred to as 'China' from here on) uses 110V and 220V AC at 50MHz, both emulators will work, but the shape of the wall outlet is not compatible.

Outlet types A-2, C-2, B-3, O, and BF are used in China. Please check which outlet type is used where you are going to install your system and carry the proper cable that meets Chinese safety standards. The AC supply outlet of PC4701U, PC4701M and PC4701HS is inlet type (refer to picture) so that the bundled AC cable can be replaced with an appropriate cable.


Inlet type

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Last Updated: March 20, 2000
Document Number: 01051031_e

M32C/80, M16C/80 series **M16C/60, 30, 20, 10 series** **79xx series** **77xx series** **740 family**

Q.

Teach me the product line of PC4701 emulator.

A.

PC4701 emulator has the following 6 types.

Specifications		PC4701U Now!	PC4701M Discontinued	PC4701HS Discontinued	PC4701L Discontinued	PC4700H Discontinued	PC4700L Discontinued
Basic Function Program run Step execution RAM monitor, etc.		Implemented					
Extension Function Real-time trace C0 coverage State transition break, etc.		Implemented			Not implemented	Implemented	Not implemented
Host Machine I/F	Serial	None	RS-232C (max 38,400 bps)				
	USB	Implemented (*1)	None				
	Parallel	LPT Parallel (*2)		Dedicated parallel (*3)			
	LAN	10Base-T	None	10Base-T, 10Base-5	None	10Base-T, 10Base-5	None
Power Supply		Built-in		External	Built-in		
Overseas Standards		Conformity				None	
Emulator Debugger		License bundled (*4)		Optional			

*1. Supports USB 1.1 Full-Speed spec.
*2. Printer port (ECP, EPP, Byte/compatibility and Nibble/compatibility modes)
*3. PCA4202G02 parallel interface board (optional) is required.
*4. The product includes the right to download the latest-version emulator debugger from our homepage without charge.

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Last Updated: October 20, 2003
Document Number: 03092201_e

Q.

After installing the emulator debugger and connecting the emulator through the USB port, the new device is still not recognized by the system.

A.

Use the Windows Device Manager to confirm whether your PC is recognizing the USB driver. Select one of the following and right-click on Properties.

Renesas Emulator -> Renesas USB Interface
Mitsubishi Emulator -> Mitsubishi USB Interface
Mitsubishi Emulator -> Renesas USB Interface

Does the [Device Status] display indicate [This device is working properly]?

If the device cannot be found, use the following procedure to install the USB device driver.

1. Confirm that the emulator debugger has been installed.
2. Connect the host machine and the emulator with the USB cable.
3. Turn the emulator power on.
4. When the USB device is detected, the installation wizard for the corresponding device driver will start up.
5. By following the messages displayed by the wizard to execute the install process, a dialog will open for specifying the setup information file (inf file).
6. Specify the musbdrv.inf file under the directory that installed the emulator debugger.

The emulator that contains the USB interface cannot use the USB device driver that comes standard with the OS. You will need to install the driver that comes with the emulator debugger (musbdrv.sys).

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Last Updated: October 5, 2001
Document Number: 01092006_e

M32C/80, M16C/80 series **M16C/60, 30, 20, 10 series** **79xx series** **77xx series** **740 family**

Q.

I installed the dedicated device driver (Musbdrv.sys) for the Renesas emulator, but when I look at the device manager in the system property, I don't get the USB icon, instead I get a "? (question mark)" icon.

A.

If the "Driver" directory of the CD-ROM included with PC4701U is specified when installing the USB driver, the Renesas emulator will display a "?" icon in the device manager. This indicates that there is a mistake in the description of Musbdrv.inf in the "Driver" directory. Although a "?" icon is displayed instead of the USB icon, there are no problems with the connection to Emulator PC4701U and it can be used as is.
Note that this does not occur when installing the USB driver from the "Drivers" directory created by the PDxx installer, following the instructions in the PDxx User's Manual.

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Last Updated: October 5, 2001
Document Number: 01092005_e

M32C/80, M16C/80 series **M16C/60, 30, 20, 10 series** **79xx series** **77xx series** **740 family**

Q.

The wizard for adding a USB driver starts up when connecting a USB cable of PC4701U to a PC. Why isn't the driver installed automatically?

A.

When installing a USB interface to PC4701U, you must use the Renesas-dedicated device driver (Musbdrv.sys).
Because this is a Renesas-dedicated driver, Windows will request driver installation the first time the PC4701U is connected to the computer. However, common devices, such as keyboards, mouse devices, etc, are pre-defined as standard device-class, and are recognized automatically.

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Last Updated: April 20, 2001
Document Number: 01051032_e

M32C/80, M16C/80 series **M16C/60, 30, 20, 10 series** **79xx series** **77xx series** **740 family**

Q.

Can I connect my stand-alone PC with either Emulator PC4701U or PC4701HS using a LAN connection?

A.

There are two methods in which you can directly connect either PC4701U or PC4701HS to your PC:

1. **10BASE-T Cross Connection**
   Use a commercially available 10BASE-T cross cable or a 10BASE-T cross converter to connect the PC4701U/ PC4701HS to your PC to enable direct data transmission. For more details, please refer to MESC TOOL NEWS "Information on Communications Using PD30, PD38, and PD77 " issued on June 16, 1998.

   Connection example:

   ```
   PC ---- cross converter cable ---- PC4701U/PC4701HS
   ```

2. **Stand-Alone Hub Connection**
   Just setup a stand-alone network hub that is isolated from your domain, and connect your PC and the PC4701U/PC4701HS through the hub.

   Connection Example:

   ```
         Hub
        |  |
    +---+  +---+
    |          |
   PC         PC4701U/PC4701HS
   ```

How to setup the PC-to-PC4701U/PC4701HS connection:
When using either of the above connections, you will need to assign an IP address in the PC4701U or PC4701HS. Use the following steps to setup the connection. For more details, refer to the instructions included with each product.

1. Connect the PC4701U/PC4701HS to your PC with an RS-232C cable, then boot-up the PDxx.
2. Set the IP address, sub-net mask, and port number for PC4701U/PC4701HS.
   - Make sure the assigned IP address is not the same as the PC's IP address (DHCP cannot be used).
   - The sub-net mask value must be the same value as that of the PC.
   - The port number can be left as the default (4700).
3. Shut down the PDxx and turn off PC4701U/PC4701HS.
4. Switch to the LAN, set the I/F switch to LAN, and then turn on the PC4701U/PC4701HS.
5. Boot-up the PDxx, then specify the IP address. This will let you connect to the emulator.

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Last Updated: September 20, 2000
Document Number: 01051033_e

M32C/80, M16C/80 series **M16C/60, 30, 20, 10 series** **79xx series** **77xx series** **740 family**

Q.

What are Renesas's plans for emulator to PC interface?

A.

Our newly developed emulators (excluding 4-bit MCU and compact type emulators) will all have the following built-in interface features as standard specifications.

- USB: USB 1.1 FullSpeed
- LPT: EPP, ECP, Byte, and Nibble modes
- LAN: 10BASE-T Ethernet

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Last Updated: August 7, 2000
Document Number: 01051035_e

M32C/80, M16C/80 series **M16C/60, 30, 20, 10 series** **79xx series** **77xx series** **740 family**

Q.

Although I want to connect emulator PC4701HS (or PC4700H) to the host through LAN, the host IP address is set to auto-config so that the host does not recognize the emulator. What should I do? Why?

A.

When you want to connect the PC4701HS (or PC4700H) and the host with a point-to-point connection, you will need to set the host IP address individually. The emulator IP address will need to be set in the same manner, as well.

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Last Updated: August 7, 2000
Document Number: 01051036_e

M32C/80, M16C/80 series **M16C/60, 30, 20, 10 series** **79xx series** **77xx series** **740 family**

Q.

I want to connect emulator PC4701HS (or PC4700H) to the host through LAN. Can I give the emulator an IP address automatically?

A.

Neither PC4701HS nor PC4700H can receive the IP address automatically. You will need to specify the IP address manually for each emulator.

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Document Number: 01051038_e

M32C/80, M16C/80 series M16C/60, 30, 20, 10 series 79xx series 77xx series 740 family

Q.

How to connect the emulator PC4701U (or PC4701M) and printer port of PC?

A.

For the procedure of LPT port connection, please refer to User's manual attached to the emulator debuggers. Refer to PC4701 site's "LPT Port Connection Tips" in this home page when can't communicate even if you connect them according to manual.

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Last Updated: January 22, 2001
Document Number: 01051039_e

M16C/60 series

Q.

I am using Emulation Pod M306xxTx-RPD-E with the 100LCC-80QSB pin-converter board, but the POWER LED on the STATUS OF TARGET side of Emulator PC4701 doesn't turn on.

A.

The POWER LED will not turn on when 100LCC-80QSB is used. Normally, the PC4701 confirms that power is properly supplied to the Vcc pins of the MCU, and then turns on the POWER LED. However, the 80-pin MCU has only one Vcc pin. So, when the pin-converter is used, only one Vcc pin can be connected to the 100-pin side (M16C/60, M16C/61, and M16C/62 Group 100-pin MCUs). Therefore, when the PC4701 tries to confirm the Vcc supply status, it can identify only one power supply and it does not turn on the POWER LED. Please note that even though the LED is not on, this does not indicate a debugging problem.

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Last Updated: July 5, 2000
Document Number: 01051040_e

M32C/80, M16C/80 series **M16C/60, 30, 20, 10 series** **79xx series** **77xx series** **740 family**

Q.

Please let me know the serial numbers of the emulator PC4701HS/PC4700H products to be repaired, as indicated in the following article.

> MESC TOOL NEWS "Precaution in Using PC4701/PC4700/PC4901/PC4900 Emulators with LAN Interface" issued on July 16, 1998

A.

You can determine whether your product (PC4701HS or PC4700H) has a LAN monitor ROM failure (class-C connection failure) that needs to be repaired by referring to the serial number on the bottom cover of the chassis. Products that have already been repaired will have the following codes added to the end of the serial number. If you find that you have a product that needs to be repaired, please submit a repair request to us as soon as possible.

Serial numbers for repaired products (LAN Monitor ROM):

PC4701HS: serial numbers ending in CA, D, E or later alphabetical characters
PC4700H: DA, EA, FA, G, H, I, or later

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Last Updated: March 3, 2000
Document Number: 01051041_e

740 family

Q.

I am using the emulator PC4701 with the emulation pod M38000TL2-FPD. When I startup the emulator system, the PC4701 LED display immediately after startup is not as indicated in the instructions. In normal operations, the target status RESET LED should go off, but it remains on. I assumed that this indicates an error, but the emulator debugger still operated normally. Why?

A.

With the emulator debugger PD38 V.3.00 Release 1 or later, the RESET LED remains on under normal conditions.

The firmware in PD38 V.3.00 Release 1 and later has been modified so that the MCU goes to reset status immediately after startup. Therefore, RESET LED and others will turn on at the time of normal startup, as described below.

POWER : ON during connection to target system, OFF when disconnected
CLOCK : ON
RESET : ON
RUN : OFF
HALT : OFF

When PD38 is started up under normal conditions, the MCU is released from reset mode and the RESET LED is turned OFF.

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Last Updated: June 5, 2003
Document Number: 01051042_e

M32C/80, M16C/80 series **M16C/60, 30, 20, 10 series** **79xx series** **77xx series** **740 family**

Q.

The following message is displayed when I turn on the emulator debugger: "Status: unable to reset" or "Cannot communicate with the debugging monitor. Please execute RESET command.". Why?

A.

M32C/80, M16C/80 series **M16C/60, 30, 20, 10 series** **79xx series** **77xx series**

Please check the following items:

1. Compatibility of emulator pod and firmware
   Is the name of the firmware (see manual for details) that corresponds to the emulator pod correctly described in the MCU file?
   Make sure you follow all instructions displayed after turning on the emulator debugger concerning downloading firmware.
2. Confirm that normal voltage levels are being supplied to the reset pin, NMI*pin, HOLD*pin, etc. (default = high).
3. Confirm that the correct MCU file has been selected.
4. Make sure that power and GND are being properly supplied to the target system.
5. In the memory expansion mode or the microprocessor mode, confirm that the RDY*pin and HOLD*pin are both at "H" level.

740 family

Please check the following items:

1. Compatibility of emulator pod and firmware
   Is the name of the firmware (see manual for details) that corresponds to the emulator pod correctly described in the MCU file?
   Make sure you follow all instructions displayed after turning on the emulator debugger concerning downloading firmware.
2. Confirm that normal voltage levels are being supplied to the reset pin, HOLD*pin, etc. (default = high).
3. Confirm that the correct MCU file has been selected.
4. Make sure that power and GND are being properly supplied to the target system.

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Document Number: 01051043_e

M32C/80, M16C/80 series M16C/60, 30, 20, 10 series 79xx series 77xx series 740 family

Q.

My emulator PC4701 will not turn on. What should I do?

A.

Please confirm the following items:

1. Is the AC power cable properly connected to the outlet?

2. Is the AC power within the PC4701's input range?

3. When using the PC4701HS, is the DC power source output cable of the dedicated power unit (PC4701P) connected to the emulator properly?

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Document Number: 01051044_e

M32C/80, M16C/80 series M16C/60, 30, 20, 10 series 79xx series 77xx series 740 family

Q.

I can't successfully download the firmware. What am I doing wrong?

A.

Please download using the following process:

1. Press the reset button on the emulator within 2 seconds of turning on the emulator PC4701.

2. Confirm that the PC4701 system status LED is displaying a blinking "SAFE".

3. Start up the emulator debugger.

4. "We should download new firmware." will be displayed. Click "OK".
   *The PC4701 system status LED will indicate "ERROR" during the download. This only indicates firmware is being downloaded and does not mean that there is a problem with the system.

5. The time required for the download is follows. After the download has completed, the system will automatically restart and return to the normal mode.
   - with USB interface : about 20 seconds
   - with LPT interface : about 20 seconds
   - with a dedicated parallel interface : about 30 seconds
   - with serial interface : about 5 minutes

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March 21, 2001
Document Number: 01051045_e

M32C/80, M16C/80 series **M16C/60, 30, 20, 10 series** **79xx series** **77xx series** **740 family**

Q.

The following message is displayed when I turn on the emulator: "Communication error".

A.

Please confirm the cause of the error according to the type of interface used.

1. **USB Interface Connection** (PC4701U)
   - Is the USB interface cable correctly connected between Emulator PC4701 and the host machine?
   - Is the interface selection switch on PC4701 set to "USB"?
   - Is the emulator debugger interface set to "USB"? Confirm the contents of the environment setup file (.ini).
   - Check the device manager to make sure the host machine recognizes the USB driver (musbdrv.sys).

2. **LPT Interface Connection** (PC4701U or PC4701M)
   - Is the LPT parallel interface cable correctly connected between PC4701 and the host machine?
   - Is the interface selection switch on PC4701 set to "LPT Parallel"?
   - Is the emulator debugger interface set to "LPT"? Confirm the contents of the environment setup file (.ini).
   - Does the type and I/O address of the LPT parallel interface in the emulator debugger match the host machine?

3. **LAN Interface Connection** (PC4701U)
   - Is the 10BASE-T cable correctly connected between PC4701 and the hub?
   - If PC4701 and the host machine are connected directly, make sure you are using a 10BASE-T cross cable.
   - Is the interface selection switch on PC4701 set to "LAN"?
   - Is the emulator debugger interface set to "LAN"? Confirm the contents of the environment setup file (.ini).
   - Did you shut down and then restart PC4701 after setting the IP address?
   - When setting up the host machine and PC4701 in separate networks, make sure you set the gateway in the OS.
   - Make sure that the gateway IP address you register in PC4701 is the correct gateway for PC4701.

4. **LAN Interface Connection** (PC4701HS)
   - Is the LAN interface cable correctly connected?
   - Is the interface selection switch on PC4701 set to "LAN"?
   - When you use Ethernet, the 10Base-5 connection should connect the Ethernet cable to the transceiver through a transceiver cable, and the 10Base-T connection should connect it to the hub. When using a 10Base-T relay adapter to lengthen the cable, make sure the adapter and cable are connected.
   - Make sure the IP address, port number, and subnet mask are set correctly. Confirm with your LAN system administrator.
   - Is the emulator debugger interface set to "LAN"? Confirm the contents of the environment setup file (.ini).

5. **Parallel Interface Connection** (PC4701HS,PC4701L,PC4700H,PC4700L)
   - Is the parallel cable correctly connected between PC4701 and the host machine?
   - Is the interface selection switch on PC4701 set to "PARALLEL"?
   - Is the emulator debugger interface set to "parallel"? Confirm the contents of the environment setup file (.ini).
   - Is the parallel interface board set correctly? The problem may be caused by a collision of I/O addresses created by a board in your PC having the same address as the parallel interface board (PCA4202G02 for IBM PC/AT or PCA4201 for PC-9800 series). Refer to the interface board instructions for more details.

6. **Serial Interface Connection**
   - Is the serial cable correctly connected between PC4701 and the host machine?

- Is the interface selection switch on PC4701 set to "RS-232C"?
- Is the emulator debugger interface set to "serial"? Confirm the contents of the environment setup file (.ini).

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Document Number: 01051046_e

M32C/80, M16C/80 series **M16C/60, 30, 20, 10 series** **77xx series** **740 family**

Q.

Why do I get an error when I execute the self-check on the emulator PC4701?

A.

M32C/80, M16C/80 series **M16C/60, 30, 20, 10 series** **77xx series**

Before starting the self-check process, the emulator PC4701 confirm the conditions of the emulation pod, firmware, and evaluation MCU. If there is any abnormality found concerning the following 3 items, an error message will be displayed.

1. Emulation Pod Connection
   Is the connector properly connected to PC4701 and the emulation pod? Attach the flexible board FLX120-RPD after detaching it and make sure the four screws of it are securely tightened.

2. Emulation pod and firmware compatibility
   When the firmware download display appears at startup of the emulation debugger, please download the firmware which corresponds to your emulation pod, as indicated in the displayed message. Refer to the emulation pod manual for information concerning emulation pods and corresponding firmware.

3. Target Connection
   Always disconnect the target system before executing the self-check. In addition, set the switch on top of the emulation pod (refer to the emulation pod manual).

740 family

Before starting the self-check process, the emulator PC4701 confirm the conditions of the emulation pod, firmware, and emulator MCU (or evaluation MCU). If there is any abnormality found concerning the following 4 items, an error message will be displayed.

1. Emulation Pod Connection
   Is the connector properly connected to PC4701 and the emulation pod? Attach the flexible board FLX120-RPD after detaching it and make sure the four screws of it are securely tightened.

2. Emulation pod and firmware compatibility
   When the firmware download display appears at startup of the emulation debugger, please download the firmware which corresponds to your emulation pod, as indicated in the displayed message. Refer to the emulation pod manual for information concerning emulation pods and corresponding firmware.

3. Emulator debugger Version (When using the Pod with Evaluation MCU)
   When PDB38 or WDB38N is used with the emulation pod for evaluation MCU method (M3xxxxT-RPD-E), self-check error occurs. Upgrade to PD38.

4. Target Connection (When using the Pod with emulator MCU)
   Check the following 3 items when you use the M3xxxxTxx-FPD emulation pod:
   - Is the emulator MCU connected to the target system correctly?
   - Is the emulator MCU supplied with the power (subject to MCU specifications) and clock? Because the emulation pod does not have the capacity to supply power to other devices, design your system so that the emulator MCU is powered by the target system.
   - When using a reset IC in your target system, remove the reset IC from the target system and set approx. 10kW pull-up resistor for a time. After completing debug by using the emulator, set the reset IC to the target system again.

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Last Updated: March 20, 2001
Document Number: 01051047_e

M32C/80, M16C/80 series **M16C/60, 30, 20, 10 series** **79xx series** **77xx series** **740 family**

Q.

In Emulator PC4701, what break conditions must be detected for the break-event output cable to output a break signal?

A.

The PC4701 outputs a break signal when the following factors are detected.

- H/W break condition occurs
- Protect break condition occurs

* A break signal will not be output for a S/W break. (As the software break is controlled internally, the emulation pod itself does not output the signal.)

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Last Updated: July 5, 2000
Document Number: 01051048_e

M32C/80, M16C/80 series **M16C/60, 30, 20, 10 series** **79xx series** **77xx series** **740 family**

Q.

Which debugger commands disturb the emulator MCU executions during a RUN?

A.

(1) Memory - Dump Window Command/Scroll

Due to memory dump window command operations and window scrolling, the user program is intermittently stopped by the debug command execution and loses the true real-time operation.

(2) Real-Time RAM Monitor Display, Command and Scroll

The operation and scrolling of the real-time RAM monitor window does not disturb the user program execution and the MCU real-time operation is still guaranteed.

(3) Source Window Display

The source window operation does not disturb the MCU real-time operation. However, the reverse-assembler display, mix display and scrolling the window intermittently disturb the MCU real-time operation and the user program loses its real-time execution.

(4) Mouse Curser RAM Tip Display in Source Window

The tip display causes the emulator MCU to fetch the respective data by executing the debug program intermittently during the user program execution. Therefore, the user program loses true real-time operation. To avoid this problem, do not put the mouse curser on any variables in the source window.

(5) Register Window Operation

The register window displays the status of the registers just before the user program execution since the window cannot review any register status during the user program execution.

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Last Updated: July 5, 2000
Document Number: 01051049_e

M32C/80, M16C/80 series **M16C/60, 30, 20, 10 series** **79xx series** **77xx series** **740 family**

Q.

Does the emulator debugger PDxx operation affect the MCU execution speed or conditions? I would like to know how the emulator PC4701 reads out data from the MCU in real-time.

A.

The real-time RAM monitor function and the real-time trace function are performed as described below. This function does not disturb the MCU execution speed and, therefore, does not disturb any user program executions.

1. The emulator monitors the MCU bus.
2. When the specified area is accessed, the emulator reads and stores the MCU bus transaction data.
3. The emulator PC4701 uploads the stored data to the host PC according to the PDxx debug command.

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Last Updated: September 5, 2001
Document Number: 01072302_e

M32C/80, M16C/80 series **M16C/60, 30, 20, 10 series** **79xx series** **77xx series** **740 family**

Q.

What is the correct timing for turning ON/OFF the power supply to PC4701U and the target system?

A.

When turning on the target system and the emulator PC4701, turn the target system on first, then the emulator PC4701, while keeping the timing as short as possible.
When turning the power supply off, turn off the emulator PC4701 first, then the target system. Again, keep the timing as short as possible.

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M308xxT-EPB Emulation Probe for M32C/80 Series

See Tool News for this product

Last Updated: June 7, 2004

- In what circumstances should I check the following box in the MCU tag in the Init dialog of the emulator debugger? (June 7, 2004) NEW
  - ☐ Debug the program using the Watchdog Timer.
- I want to debug a program that uses the MCU watchdog timer. Do I need to set the debugger to do so? (June 7, 2004) NEW
- The ROM in which the target program has been written is mounted on the user target board. I set the MCU to the microprocessor mode. I am trying to execute the program, but it does not run normally and be debugged. What could be the problem? (July 22, 2003)
- I changed the setting of the port P9 direction register with the emulator debugger, but the status doesn't change. What's the problem? (Mar. 5, 2002)

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Last Updated: March 5, 2002
Document Number: 02022002_e

Q.

I changed the setting of the port P9 direction register with the emulator debugger, but the status doesn't change. What's the problem?

A.

1. If you set the protect register (PRC2), which enables writing in the port P9 direction register, with the following procedure, the protect on the port will not be released and the port cannot be programmed.

   (1) Execute [instruction for setting "1" PRC2] step.

   (2) Set a break point from [instruction for setting "1" PRC2] to [setting the port P9 direction register or the register for the protect].

   (3) Set ["1" PRC2] from DUMP WINDOW, SCRIPT WINDOW, etc. while user program is running.

   After setting the protect register (PRC2), it will go to "0" when you write to any address. Therefore, program the direction register immediately after changing the protect register setting.

   To confirm that the port P9 direction register has been successfully programmed, stop the user program after you have written to the register and click on the "Clear" button in the RAM monitor window.

2. Also, make sure that the port P92 is set for port functions, not peripheral functions.

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M308xxT-RPD-E Emulation Pod for M32C/80, M16C/80 Series

See Tool News for this product

Last Updated: June 7, 2004

- The Emulator Debugger M3T-PD308 comes with the following MCU files: M30800.MCU, M30803.MCU and M30835.MCU. Which one should I select? (June 7, 2004) NEW
- In what circumstances should I check the following box in the MCU tag in the Init dialog of the emulator debugger? (June 7, 2004) NEW
  ☐ Debug the program using the Watchdog Timer.
- I want to debug a program that uses the MCU watchdog timer. Do I need to set the debugger to do so? (June 7, 2004) NEW
- Can Emulation Pod M30800T-RPD-E (discontinued product) for M16C/80 Group be used to debug MCUs with RAM 20KB or RAM 24KB for M16C/80 Group? (July 22, 2003)
- The ROM in which the target program has been written is mounted on the user target board. I set the MCU to the microprocessor mode. I am trying to execute the program, but it does not run normally and be debugged. What could be the problem? (July 22, 2003)
- Can I expand the memory capacity of the expansion emulation memory(1.5MB) in the M16C/80 series emulation pod M30803T-RPD-E or M30800T-RPD-E (discontinued product)? (Mar. 5, 2003)
- I changed the setting of the port P9 direction register with the emulator debugger, but the status doesn't change. What's the problem? (Mar. 5, 2002)
- Can the power supply to the target system be turned ON/OFF during a free run operation on the emulator debugger (M3T-PD308 or M3T-PD30)? (Feb. 20, 2002)
- When debugging the operations in just one sub-block using emulation pod M306N0T2-PRD-E (for M16C/6N Group), the UART, timers, and other peripheral functions still operate normally even though the main clock is stopped. (These functions did stop in the evaluation MCU). Why is this happening and what is the work-around for this problem? (Dec. 20, 2001)
- I am debugging a program that uses a timer interrupt, but the timer interrupt is still generated even after the program stops. What is causing this? (Dec. 20, 2001)

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Last Updated: March 5, 2003
Document Number: 03022002_e

Q.

Can I expand the memory capacity of the expansion emulation memory(1.5MB) in the M16C/80 series emulation pod M30803T-RPD-E or M30800T-RPD-E (discontinued product)?

A.

Yes. The expansion emulation memory capacity can be expanded from 1.5MB to 4.0MB. To do so, replace the standard memory board in the emulation pod with the 4MB expansion emulation memory board M30800T-M04, which is sold separately.

Note:
M30800T-M04 can be used with emulator debugger M3T-PD308 V.1.00 Release 1 or later, but the debug monitor bank address cannot be set from F0 to FB in the EMEM dialog.

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Last Updated: February 20, 2002
Document Number: 02020501_e

Q.

Can the power supply to the target system be turned ON/OFF during a free run operation on the emulator debugger (M3T-PD308 or M3T-PD30)?

A.

No. None of the emulation pods (see list below) support normal operations even if only the power to the target system is cut.

Affected emulation pods:

M16C/10 Series	: M30100T-RPD-E
M16C/20 Series	: M302xxT-RPD-E
M16C/60 Series	: M306xxTx-RPD-E
M32C/80, M16C/80 Series	: M308xxT-RPD-E

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Last Updated: December 20, 2001
Document Number: 01120503_e

Q.

When debugging the operations in just one sub-block using emulation pod M306N0T2-PRD-E (for M16C/6N Group), the UART, timers, and other peripheral functions still operate normally even though the main clock is stopped. (These functions did stop in the evaluation MCU). Why is this happening and what is the work-around for this problem?

A.

We don't have a work-around method for this problem.
This occurs in all M16C/80, M16C/60, and M16C/20 Series' emulation pods, not just in the M306NOT2-PRD-E. Even when the main clock stop bit is set, peripheral functions that use the internal clock as the count source, etc. continue to operate.

The internal clock is continually supplied to the peripheral functions of the emulation pod for the following reasons.

- When using the emulation pod, the clock must be input in square-wave form to the evaluation MCU XIN.
- When the main clock stop bit is concurrently set in both the evaluation MCU and the target MCU and an oscillator is connected between XIN and XOUT, the clock buffer stops and there is no oscillation, but when a square-wave is input to XIN, the XIN signal is supplied to the internal clock.

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Last Updated: December 20, 2001
Document Number: 01120502_e

Q.

I am debugging a program that uses a timer interrupt, but the timer interrupt is still generated even after the program stops. What is causing this?

A.

In M16C/80, M16C/60, and M16C/20 Series' emulation pods, a loop program is executed at certain addresses even while the program is stopped. Therefore, timers and other peripheral functions do operate and interrupts are generated even when the program is stopped.

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M30201T-56FP

See Tool News for Accessories

Last Updated: July 5, 2000

- What kind of components does the M30201T-56FP pin converter board include? (Jul. 5, 2000)

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M37530T-PTCC

See Tool News for Accessories

Last Updated: May 20, 2002

- There is a switch on the M37530T-PTCC converter (used for connecting 42-pin RSS type emulator MCU), which switches operation from/to M37531RSS (7531 emulator MCU) and M37532RSS (7532 emulator MCU). Which side should I set it to when using M37540RSS (7540 emulator MCU)? (May 20, 2002)*New!*

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SEAL100FP

See Tool News for Accessories

Last Updated: April 20, 2000

- 1. How can I attach SEAL100FP to a universal board?
  2. What do the resist and land shape of the seal board look like? (Apr. 20, 2000)

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M38C89T-ADF

See Tool News for Accessories

Last Updated: November 5, 2003

- How should the emulator and target system be connected for M38C8 debug? (Nov. 5, 2003)*New!*
- I am trying to mount the M38C89RLFS (38C8 Group) to the temporary target board M38C89T-ADF. In the M38C89T-ADF Manual, it instructs to mount the MCU in the direction of the marking on the top of the MCU. However, I cannot find any markings on the top of M38C89RLFS and cannot determine the proper mounting direction. (Nov. 5, 2002)

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M3T-100LCC-80QSB (formerly called: 100LCC-80QSB)

See Tool News for Accessories

Last Updated: January 22, 2001

- I am using Emulation Pod M306xxTx-RPD-E with the 100LCC-80QSB pin-converter board, but the POWER LED on the STATUS OF TARGET side of Emulator PC4701 doesn't turn on. (Jan. 22, 2001)

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M3T-DCT42B-450 (formerly called: DIRECT42-450-50)

See Tool News for Accessories

Last Updated: September 20, 2000

- The accessory Guide indicates that 42DIP-DMS must be used with DIRECT42-450-50. Can I use SSOP42B-450 instead of DIRECT42-450-50? (Sep. 20, 2000)

- I want to use the 3805/3851 MCU with the 42-pin SSOP package. Is there a way to connect the emulator probe to the 42-pin SSOP footprint on the target board? (Apr. 20, 2000)

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M3T-DUMMY64

See Tool News for Accessories

Last Updated: November 19, 2002

- Can I use the Dummy IC M3T-DUMMY64 socket (AXS4643R19K; normally used for 64-pin, 0.8mm pitch QFP 64P6N-A package MCUs) with 64-pin, 0.8mm pitch LQFP 64P6U-A package MCUs? (Nov. 19, 2002)*New!*

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M3T-DUMMY80 (formerly called: DUMMY80)

See Tool News for Accessories

Last Updated: July 5, 2000

- Can I use Matsushita (National) Electronics IC socket AXS4806M19C (screw-on type) as the socket to attach the dummy IC, DUMMY80? (Jul. 5, 2000)

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M3T-DUMMY100S (formerly called: DUMMY100S)

See Tool News for Accessories

Last Updated: July 5, 2000

- Can I use Yamaichi Electric's IC socket for attaching the dummy IC, DUMMY100S? (Jul. 5, 2000)

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M3T-FLX100 (formerly called: FLX100)

See Tool News for Accessories

Last Updated: April 20, 2000

- Please supply the connection diagram for the through-holes of Flexible Cable FLX100 of the emulation pod. (Apr. 20, 2000)

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M3T-FLX-80QSB (formerly called: FLX-80QSB)

See Tool News for Accessories

Last Updated: July 5, 2000

- Is it possible to connect the FLX-80QSB to the FLX100-T/R pin direction converter board? (Jul. 5, 2000)

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M3T-SSOP42B-450 (formerly called: SSOP42B-450)

See Tool News for Accessories

Last Updated: September 20, 2000

- The accessory Guide indicates that 42DIP-DMS must be used with DIRECT42-450-50. Can I use SSOP42B-450 instead of DIRECT42-450-50? (Sep. 20, 2000)

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Document Number: 01051198_e

Q.

Is it possible to purchase the MR30S production license only, without purchasing the development kit?

A.

No. You will need to purchase both the production license and development kit.

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Last Updated: December 20, 2000
Document Number: 01051199_e

Q.

My program stopped operating properly after I changed the message size in the mailbox function. Why?

A.

When using the mailbox function, please set the compile option according to the mailbox size, as follows.

1. When specifying the message size as 32
   Add -Dfar_msg=1 to the compile options.
   Add c30mrlm.lib, mr30lm.lib to the link libraries in the link options.
   If c30mr.lib, mr30.lib are included in the options, remove them.

2. When specifying the message size as 16 or when not setting the send data size
   If -Dfar_msg=1 is included in the compile options, remove it.
   Add c30mr.lib, mr30.lib to the link libraries in the link options.
   If c30mrlm.lib, mr30lm.lib are included in the options, remove them.

If the above items are not set in this manner, the snd_msg system call will be called and the program will not work properly.

[How to Change the Compile Options]

- For TM V.3.0 and later versions
  When setting or changing the message-size specification in the MR30 configuration file, you must also add the changes described above to the compile options in TM according to the specifications or changes.
- When not using TM
  When a makefile has been created with the makefile function in the configurator, make sure you re-execute the configuration. This way, the compile options will be automatically revised.

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Last Updated: December 20, 2000
Document Number: 01051200_e

Q.

Assume that I am developing an application program with MR30. When I change the output destination directory during the compile or assemble process (specified options: -dir for compiler, -0 for assembler), MR30 will no longer link the real-time OS kernel module.

A.

If the output directory of the object file is different from the directory in which mkmrtbl (supplied as an utility program in the MR30 package) operates, and you are specifying an additional directory to the source file during a compile or assemble, or changing the output destination directory; you need to add that output destination directory to the mkmrtbl option before starting up MR30.

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Last Updated: August 5, 2002
Document Number: 01051201_e

Q.

My program is malfunctioning...

A.

Please check the following items

1. Is the interrupt level set properly?
   OS-independent interrupt > OS-interrupt disable level > OS-dependent interrupt
2. Are you issuing the system call from the OS-independent interrupt?
3. Is your stack size big enough?
   (We recommend using utility stk30 or stkviewer for calculating the task stack size.)
4. Are you ending the task (issue ext_tsk) and leaving loc_cpu or dis_dsp issued? If so, this is the problem. Instead, when issuing loc_cpu or dis_dsp, make sure you then issue unl_cpu or ena_dsp before ending the task (issue ext_tsk).
5. The NMI interrupt or watchdog timer interrupt may be configured as OS-dependent interrupts. These interrupts must be OS-independent interrupts.

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Last Updated: August 20, 2002
Document Number: 02080501_e

Q.

I am creating a program with M3T-MR30 using TM, but I get a "value is undefined" error for the symbols for system call, etc. when I perform the build. What is the problem and how can I solve it?

A.

Most likely the M3T-MR30 library isn't linked to your program.
To link the following library, you will need to specify it in the TM option browser.

For 32-bit message size: mr30lm.lib, c30mrlm.lib
For 16-bit message size: mr30.lib, c30mr.lib

For more detail, please refer to the Release note for TM.

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Document Number: 01051220_e

Q.

During a compile, the "far pointer (implicitly) casted by near pointer" warning comes up concerning the system call in the mailbox functions. Why do I get this warning?

A.

This is probably because the compile option "-Dfar_msg=1", which is required for 32-bit message send, isn't specified. As for the compile options, if the message_size item in the system definitions of the configuration file is specified as "16", or the item has been abbreviated, it will not be output in the makefile created by the configurator. Specify this item to "32" and initiate the configurator with option "-m", in order to have this compile option be output in the makefile.

```
Example: system{
                    :
             message_size = 32 <-- if 16, warning is issued
                    :
         };
                     |<next>
             cfg30 -m configuration file
                     |<next>
                    make
```

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Document Number: 01051202_e

Q.

Can I use C language standard function "malloc" to allocate memory (variable-size) dynamically with the MR30?

A.

Please do not use "malloc". To allocate the necessary memory size, use a system call which includes the variable-size memorypool function.

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Document Number: 01051203_e

Q.

In the variable-size memorypool function, there are 4 types of memory block sizes available based on the value (max_memsize) specified in the configuration file. Please let us know the equation for determining these 4 block sizes.

A.

The following equations define the block sizes:

a = (((max_memsize+(X-1))/64)+1) * 8
b = a * 2
c = a * 4
d = a * 8

max_memsize: the value specified in the configuration file
X: data size for block control (8 in MR30)

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Document Number: 01051204_e

Q.

Will the cyclic handler begin processing in the interrupt disable state? Or does it start processing in the interrupt enable state?

A.

The cyclic handler is enabled by an interrupt which has an interrupt level higher than that of the MR30 system clock interrupt.
(Starts at I flag = 1, IPL = system clock Interrupt Priority Level.)

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Last Updated: March 20, 2001
Document Number: 01051205_e

Q.

When using the MR30 OS-independent interrupt and enabling the multiple interrupts option, I enable it with "#pragma INTERRUPT /E".
Is there a similar option for enabling multiple interrupts when using in the OS-dependent interrupt? I want to use the C language to write the source file.

A.

MR30 is not equipped with a function such as "#pragma", which enables multiple interrupts for the OS-dependent interrupt. Use the following to describe the area in which you want to enable multiple interrupts.

```
      #include <mr30.h>
      #include "id.h"
void inthand (void)     /* OS-dependent interrupt handler */
      {
         /* multiple-interrupt inhibited area */
            asm("    FSET I");
         /* multiple-interrupt enabled area */
            asm("    FCLR I");        <--- delete if there are no interrupt-inhibit
areas after this point.
         /* multiple-interrupt inhibited area */
       }
```

Cyclic handlers and alarm handlers are in the multiple-interrupt enabled state.

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Document Number: 01051206_e

Q.

I would like to make my own makefile for the system I use with the MR30 (in other words, not use the makefile created by the configurator). Is there anything I should be aware before doing this?

A.

Be sure to describe the following 4 items in the makefile:

- **MR30 Library Specifications**
  The MR30 library varies according to the message size of the mailbox function. When using the 32-bit message size, you must specify libraries mr30lm.lib and c30mrlm.lib. When using the 16-bit message size, libraries mr30.lib and c30mr.lib must be specified.
- **Compile Option Specifications**
  You must pay close attention to the specified compile options when compiling a file using a system call related to the mailbox functions. When using 32-bit message size, specify compile option "-Dfar_msg=1". This option does not need to be specified when using the 16-bit message size.
- **Assemble Option Specifications**
  Make sure to specify assemble option "-F" when assembling the source file, described in the assemble language, which issues the system call.
- **Process Before Linking**
  Before executing a link, make sure to execute the following two processes, in the order as are listed.
  1. mkmrtbl
  2. as30 mrtable.a30
  MR30 comes equipped with the mkmrtbl utility. Execute it in the directory where the r30 file is output. Once mkmrtbl is executed, the mrtable.a30 file will be created. After these two processes are completed, execute the link including the mrtable.r30 file.

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Document Number: 01051207_e

Q.

I want to use registers of bank 1 in the OS-independent interrupt handler. How can I specify it in the configuration file?

A.

Registers of bank 1 can not be specified in the configuration file. Insert declaration "#pragma INTERRUPT/B" after the "id.h" include command in the C language source file.

```
Example: #include <mr30.h>
         #include "id.h"

         #pragma INTERRUPT/B OS-independent interrupt handler function name
```

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Last Updated: October 20, 1999
Document Number: 01051208_e

Q.

Does MR30 perform register bank switching in the kernel?

A.

No, MR30 does not use the register bank switching function in the kernel.

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Last Updated: April 5, 2001
Document Number: 01051209_e

Q.

Renesas provides two versions of MR30: MR30K and MR30S. What are the differences between them?

A.

Version	MR30K	MR30S
Product Description	Development Kit Version of MR30	Production Version of MR30
Software Configuration	Contains complete software kit for application program development.	Only includes source file program. * User cannot develop a MR30 application system with this package alone.
License Conditions	MR30K can be used in up to 10 target systems by the purchaser.	Unlimited number of run-time licenses for original purchaser.
No. of hosts permitted	Development must be limited to one PC (IBM PC/AT compatible) or one EWS.	Can be used for development on up to a total of 20 PCs (IBM PC/AT compatible) and EWS.
Other	MR30S is mainly purchased for customers who intend to use it for mass production of systems with a pre-embedded OS. Therefore, the purchase of MR30K is considered a prerequisite.	

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Last Updated: February 20, 2002
Document Number: 02020507_e

Q.

I want to setup interval data sampling using the OnTimer function the CB30SIM. Please tell me the LSB for the interval to be set in _win_timer_set. The manual indicates milliseconds (ms). However, based on my tests so far, when I set 1000ms or more, I have no problem, but when I set 10ms as the interval, the actual interval is around 50ms.

A.

In Windows 98/95, the shortest interval available when generating timer events is around 55ms. Therefore, if you are using Windows 98/95, even if you set the interval in _win_timer_set to 10ms, the timer events will be generated every 55ms or so.

We think, in Windows 2000, the interval depends on the PC environment (motherboard, etc.).
In addition, when a timer event is generated, the timer message goes to the message queue in the application. The application doesn't necessarily receive the timer message at the specified interval, and Windows operations may cause a delay. When setting data sampling, etc., please keep in mind that the timer event intervals are not accurate.

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Last Updated: December 20, 2001
Document Number: 01120507_e

Q.

To execute a source compile on the M3T-NC30WA, I treat the enumerator by the generated code modifying option "-fCE" as an unsigned char type, rather than int type. However, when I reference the enumerator type variable with the M3T-PD30SIM (display by moving the mouse curser to the variable), it displays the form in 16 bits instead. Why?

A.

The enumerator type variables are treated as 2-byte variables by the M3T-PD30SIM. Even if you specify the enumerator as a 1-byte variable in the compiler, the enumerator type variable will be displayed in 2 bytes. However, you can reference the variable correctly by casting and registering it in the C-watch window, as done in the program below.

```
[Example Program]
---------------------------------
    typedef enum eTag {
      ENUM0=0,
      ENUM1,
      ENUM2,
         ...
    } ENUMTYPE;

    ENUMTYPE enEnum;
---------------------------------

[Example of Registration in C Watch Window]
---------------------------------
(eTag)(unsigned char)enEnum
---------------------------------
```

When registering in the C watch window, make sure you cast with [enumerator tag (shown as "eTag" above)]. Do not cast with the type you declared in typedef.
For more details, please refer to MAEC TOOL NEWS "PD32RSIM, PD308SIM, PD30SIM, PD79SIM, PD77SIM, PD38SIM, PD32000, PD32R, PD308, PD30, PD79, PD77, PD38, PD308M, and PD30M Precautions" issued on August 1, 2001.

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Last Updated: October 5, 2001
Document Number: 01092002_e

Q.

How should I set Timer A0 for MR30 when executing a program, which embeds MR30, on PD30SIM?

A.

Follow the I/O script sample program included in PD30SIM: Load the sample program for the MR30 timer (mr.ios) in the I/O window. Refer to "Introducing I/O Script Sample Programs" (27KB, 13 pages) in the manual for more details.

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Last Updated: September 5, 2001
Document Number: 01072308_e

Q.

How do I reference local bit symbols with PD30SIM?

A.

To reference local bit symbols with PD30SIM while assembling with as30, specify the "-S" or "-SM" option.
Note that local bit symbols can only by referenced when the program being executed is stopped in the source file which defines the symbols.

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Last Updated: April 5, 2000
Document Number: 01050926_e

Q.

Can PD30SIM perform the CRC code generation which M16C/62 has in its hardware function? In other words, can I use the CRC data register and CRC input register for CRC generation?

A.

Yes, you can do so in the following way:

> [Method]
> Register file crc.scr with the option-load menu of the I/O window. File crc.scr is installed in product install directory \PD30SIM\SAMPLE.

This configuration will allow you to store the CRC results in the CRC data register by simply accessing the CRC input register.

(Reference info)
Please review the CRC sample section in the PDF file (I/O Script Sample Program Introduction).

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Last Updated: September 5, 2001
Document Number: 01050945_e

Q.

According to the document Release note, PD30 can not download the object module file created by the IAR Compiler including the "XLINK V.4.51F". I want to know if PD30 can download the object module file created by the IAR C compiler including the "XLINK V.4.51G"

A.

PD30 V.4.10 Release 1 can download an object module file created by the IAR C compiler including the "XLINK V.4.51G". When you use the IAR cross tool, please refer to release note "6.3 To use IAR's cross tools", too.

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Document Number: 01050946_e

Q.

Can I use PD30 or PDB30 with the 38000 Series debugger?

A.

No. PD30 is only for use with the 16-bit M16C/60, 20 Series. Please use PD38 (originally PDB38) with the 38000 Series Windows version debugger.

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Document Number: 01050947_e

Q.

Can I use LAN interface?

A.

Yes, however, there are limitations depending on the PDB30 version and emulator type: Please note, emulator PC4701M does not support LAN interface.

1. LAN interface is not supported in versions earlier than PDB30 V.2.00. (Current upgrades for earlier versions are sold separately.)

2. A communication error will occur when the downloaded target program has more than 200K bytes of ROM size. This problem has been corrected in PD30 and PDB30 V.2.00 Release 2 and any later versions.

3. A LAN option is required in order to use LAN interface with emulator PC4701L.

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Document Number: 01050948_e

Q.

Can PD30 be used with parallel interface?

A.

You can use the parallel port equipped on your PC when using emulator PC4701M. However, you will also need to purchase Renesas's dedicated parallel interface board when using emulator PC4701HS or PC4701L. The product number for the dedicated parallel interface board is as follows:

- IBM PC/AT compatible: PCA4202GO2

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Document Number: 01050949_e

Q.

Is there an English version of PD30 available?

A.

Yes, there is. The PD30 English version supports Windows 95/98/NT on the IBM/PC/AT compatible.

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Document Number: 01050950_e

Q.

Is it necessary to purchase a PD30 for each PC we will use it on, or is it ok to make copies?

A.

It's necessary to purchase one PD30 for each PC. The PD30 software contract limits usage of the software to only one PC.

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Last Updated: January 22, 2001
Document Number: 01050951_e

Q.

Can I use the default setting of the PD30 work area as it is, when developing a program for a 256K ROM and 20K RAM MCU?

A.

When developing a program which uses more than 20K RAM, you will need to modify the PD30 work area configuration. The work area is reserved for the firmware of the ICE, so when the default setting is used as is, the work area and user RAM area will overlap (by about 10 bytes) and the user's data will be tampered by the debugging firmware.

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Last Updated: January 22, 2001
Document Number: 01050952_e

Q.

Can I use the default MCU file for PD30 when developing a program for a 256K ROM and 20K RAM MCU?

A.

You will need to modify the MCU file when developing a user program for an MCU that has a memory configuration larger than 256K ROM. The user program cannot write to the internal ROM area, which is specified in the MCU file. However, when using a 256K ROM version MCU, the default setting allows the user program to write to part of the internal ROM area.

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Last Updated: November 6, 2000
Document Number: 01050953_e

Q.

Due to changing the target MCU series, I had to change the PC4701 Emulation pod as well. Every time I apply power to the PC4701, the program generates a request for firmware download.

A.

The MCU file is probably still set for conditions required by the previous MCU series. You need to specify the MCU file for the new target MCU series and download the appropriate firmware.

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Last Updated: September 20, 2000
Document Number: 01050954_e

Q.

Is there anything I need to know about using PD30 with a LAN connection?

A.

Please be aware of the following points:

1. Before connecting PD30 with the LAN, make sure you set the emulator IP address and download the firmware using the serial connection.

2. When connecting the LAN on Windows 98, you will need to setup the following registry.
   [Registry Setup for Windows 98]

   Location: "HKEY_LOCAL_MACHINE\System\CurrentControlSet\Services\VXD\MSTCP"
   Entry: "SackOpts"
   Value: "0"

   A utility program for setting up this registry is bundled with PD30 V.4.10 Release 1 or later. For details concerning the utility, please refer to Release Note "Note about LAN communication with emulators on Windows 98" or MESC TOOL NEWS "Information on Windows 98 Hosted Mitsubishi Development Support Tools No. 2 " issued on December 1, 1998.

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Last Updated: August 25, 2000
Document Number: 01050955_e

Q.

When I start up PD30, it asks for the user to select the MCU file, but I can't locate the target MCU file. What should I do?

A.

Please make the MCU file that fits the usage conditions of the target MCU. The following list shows the MCU file description example and each statement definition.

[MCU File Description Example]

```
0
3FF
400
2BFF
F0000
FFFFF
M30600
0
```

[MCU File Statement Definitions]

```
0          -> start address of SFR area
3FF        -> end address of SFR area
400        -> start address of RAM area
2BFF       -> end address of RAM area
F0000      -> start address of ROM area
FFFFF      -> end address of ROM area
M30600     -> firmware file name *1
0          -> type of MCU *2
```

*1: The firmware file name will vary according to the emulation pod used. Refer to the attached release notes for more details.
*2: This indicates whether or not it is necessary to specify the memory space expansion mode.
(0: memory space expansion mode specification not necessary, 1: memory space expansion mode specification necessary)

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Document Number: 01050956_e

Q.

What are the numbers that appear at the end of the MCU file attached to PD30 V.4.00?

A.

Memory expansion mode is selected by specifying 0 or 1. If 1 is specified, memory expansion mode can be selected from the INIT dialog. If 0 is specified, memory expansion mode can not be selected. All other specified numbers are treated as 0. Please refer to the release notes for more details.

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Document Number: 01050957_e

Q.

Is there anything I need to know about modifying the memory map data configuration with the MAP command?

A.

Please note the following points when modifying the memory map configuration.

- Set SFR area to EXTERNAL.
- Set the internal RAM area to INTERNAL.
- When using the M16C/62 memory area expansion function, please set areas with overlapping addresses to EXTERNAL.
  *Note: Overlapping areas vary according to mode.
  - Memory area expansion mode 1: 40000H ~ 2FFFFH
  - Memory area expansion mode 2: 40000H ~ BFFFFH
- Because the emulator periodically uses addresses FFFCH ~ FFFFH as a stack, this area should be set to INTERNAL. If you must set it to EXTERNAL, make sure you prepare a readable/writable memory for this area.

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Document Number: 01050958_e

Q.

Are there any special settings required for Windows 95 when I use the LAN connection function?

A.

As long your PC is set as follows, the PD30 does not require any other special settings.

1. Windows 95 network function setting: set to TCP/IP protocol
2. The LAN interface on your PC is available.

Please note, a LAN interface option must be added to the emulator when using the LAN connection function in emulator PC4701L.

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Last Updated: December 20, 2001
Document Number: 01120506_e

Q.

To execute a source compile on the M3T-NC30WA, I treat the enumerator by the generated code modifying option "-fCE" as an unsigned char type, rather than int type. However, when I reference the enumerator type variable with the M3T-PD30 (display by moving the mouse curser to the variable), it displays the form in 16 bits instead. Why?

A.

The enumerator type variables are treated as 2-byte variables by the M3T-PD30. Even if you specify the enumerator as a 1-byte variable in the compiler, the enumerator type variable will be displayed in 2 bytes. However, you can reference the variable correctly by casting and registering it in the C-watch window, as done in the program below.

```
[Example Program]
---------------------------------
    typedef enum eTag {
      ENUM0=0,
      ENUM1,
      ENUM2,
         ...
    } ENUMTYPE;

    ENUMTYPE enEnum;
---------------------------------

[Example of Registration in C Watch Window]
---------------------------------
(eTag)(unsigned char)enEnum
---------------------------------
```

When registering in the C watch window, make sure you cast with [enumerator tag (shown as "eTag" above)]. Do not cast with the type you declared in typedef.
For more details, please refer to MAEC TOOL NEWS "PD32RSIM, PD308SIM, PD30SIM, PD79SIM, PD77SIM, PD38SIM, PD32000, PD32R, PD308, PD30, PD79, PD77, PD38, PD308M, and PD30M Precautions" issued on August 1, 2001.

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Last Updated: June 5, 2001
Document Number: 01050959_e

Q.

Can I perform source debugging with macros defined by pre-processed command #define?

A.

No. Since the pre-processor converts macro names defined by #define to real values before compiling, the compiler cannot generate the debug information for these macros. Therefore, you cannot use these macro names as labels, symbols, or variable names during debugging.

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Last Updated: November 19, 1999
Document Number: 01050960_e

Q.

When I debug a program which uses M16C/62 memory expansion mode 2, and display the pointer variables that point the value of the expanded area in C watch window, the value is not correct.

A.

The memory of the expanded area can not be accessed from the PD30 window, therefore, the correct value can not be displayed. In order to access that memory, please use a script command that allows you to specify the bank.

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Document Number: 01050961_e

Q.

Can I display and reference the float variable using decimal numbers?

A.

Yes, you can. For example, 0.5 is displayed as 5.000000E-001. Please note that the display format can not be changed.

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Document Number: 01050962_e

Q.

How can I obtain the address for the static variable in PD30?

A.

Use the following process to obtain the static variable value.

1. Execute the program to where the static variable is scoped.

2. Open the Script window and execute the print command. For example, when the variable is declared as "static char s_char;" execute "print &s_char".

3. The address value will then be displayed. In the above example, "(char &) &s_char = 0x424" will be displayed. In this case, the s_char address value will be 424H.

C Watch Window can also be used without Script Window. To achieve the same results, open C Watch Window and register "&s_char" to the watch point in the second step of the above process.

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Last Updated: February 20, 2003
Document Number: 03020501_e

Q.

If the target system is reset during the STEP execution, can the debugger continue to debug normally?

A.

If the reset signal was "L" immediately before or during the STEP execution, the emulation pod may malfunction. Make sure the reset signal is not set to "L" at these times.

To debug an operation involving a reset, perform the following procedure.

(1) Set a software break point at the start of the program.
(2) Execute RUN (program execution start) from the instruction where you want to confirm the reset sequence (see note 1).
(3) When the reset signal is "H", a breakpoint is initiated at the start of the program.

Note 1 : Do not set a software breakpoint at the instruction that you execute the RUN from.
When a RUN is executed from an instruction where a software breakpoint is set, the target system may malfunction in the same manner as when the target system was reset during the STEP execution.
This occurs due according to the specifications for emulation pod control in order to execute the STEP from an instruction where a software breakpoint is set and execute a normal RUN from the next instruction.

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Last Updated: February 20, 2002
Document Number: 02020508_e

Q.

I want to setup interval data sampling using the OnTimer function the CB30. Please tell me the LSB for the interval to be set in _win_timer_set. The manual indicates milliseconds (ms). However, based on my tests so far, when I set 1000ms or more, I have no problem, but when I set 10ms as the interval, the actual interval is around 50ms.

A.

In Windows 98/95, the shortest interval available when generating timer events is around 55ms. Therefore, if you are using Windows 98/95, even if you set the interval in _win_timer_set to 10ms, the timer events will be generated every 55ms or so.

We think, in Windows 2000, the interval depends on the PC environment (motherboard, etc.).
In addition, when a timer event is generated, the timer message goes to the message queue in the application. The application doesn't necessarily receive the timer message at the specified interval, and Windows operations may cause a delay. When setting data sampling, etc., please keep in mind that the timer event intervals are not accurate.

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Last Updated: September 5, 2001
Document Number: 01072309_e

Q.

How do I reference local bit symbols with PD30?

A.

To reference local bit symbols with PD30 while assembling with as30, specify the "-S" or "-SM" option.
Note that local bit symbols can only by referenced when the program being executed is stopped in the source file which defines the symbols.

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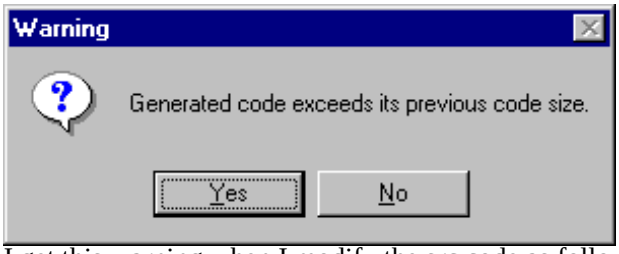
Last Updated: June 20, 2001
Document Number: 01060502_e

Q.



I get this warning when I modify the src code as follows:

MOV.W #0010H,A0 -> MOV.W #0030H,A0

Is this perhaps because the conversion to an instruction is not optimized in this case?

A.

Because the line-assemble function does not optimize the assemble code, the code size may change even with the src code conversion. However, you can generate other types of codes, such as short or zero format, by manually specifying the instruction format specifier when inputting the instruction code.

Example: MOV.W:S #0030H,A0

Please refer to the software manual for more details concerning the instruction formats.

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Last Updated: February 5, 2001
Document Number: 01050963_e

Q.

I set the hardware breakpoint in the PD30, but when I execute the program with the breakpoint, the program stops after passing the set breakpoint. What is the problem?

A.

The emulator is monitoring the CPU bus during execution of the program. When the emulator detects the match condition of the hardware breakevent, it generates a DBC interrupt to stop the program. It takes a few cycles for the CPU to receive the DBC interrupt and stop the program, which is why the program is stopped a few cycles after the set breakpoint.

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Last Updated: August 25, 2000
Document Number: 01050964_e

Q.

In PD30, is there any way to know that the program execution passed the trace point without setting a break point?

A.

Once the trace point has been reached, if the trace window is renewed without breaking with the target, this indicates that the trace point has been passed.
Please set the trace point as follows:

- Specify either 'After', 'About', or 'Before' in the Trace Area.

  After : display the 32K cycles after the trace condition is passed.
  About : display the 32K cycles before and after the trace condition is passed.
  Before : display the 32K cycles before the trace condition is passed.

For more details, refer to PD30 User's Manual.

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Last Updated: August 25, 2000
Document Number: 01050965_e

Q.

When I make a button in the GUI input window, save it, then load it again, I get an error (ERROR 10601) and cannot read it. How can I make it work?

A.

Check to make sure you haven't included a space somewhere in the button name. This is probably the problem.

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Last Updated: August 7, 2000
Document Number: 01050966_e

Q.

I know I can specify the PD30 protect break for a consecutive 256K-byte area, but can I specify the break for more than one area at the same time?

[Example]

00000h to 3FFFFh area
C0000h to FFFFFh area

A.

You cannot specify a protect for the above example area through the protect window or protect command. The protect break specification of the PC4701M/PC4701HS emulator does not have this feature.

PC4701M/PC4701HS has two types of protect break:

1. Protect break set in 1-byte units from the BASE address within a 256K bytes area
2. Protect break set in 256K-byte units for the entire area

Only type #1 can be set from PD30; type #2 is used for custom commands. For more details concerning how to use these protect breaks, please refer to the readme file.

Custom Command Download File: m_pt.exe (Self-extracting file: 33K bytes)

*The custom commands are for PD30 5.00 Release 1 only.

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Last Updated: March 21, 2000
Document Number: 01051015_e

Q.

Have the contents of the following Tool News article been updated and fixed concerning PD30 V.4.00?

> "Precaution on Using Time Measurement Windows in PC4701HS/PC4700H Emulators" in Tool News No. MESCT-PC4701HS_TRGA-980716D

If the contents have not been fixed yet, do I still need to use phicount_e.exe?

A.

The problem of this time measurement function is caused by the emulator hardware. PD30 V.4.00 and newer versions have the measurement resource selection function for time measurement functions. Therefore, you do not need to use phicount.

[Measurement Resource Selection Method]
Specify the MCU cycle in the time count resource of INIT dialog Time Page when you execute PD30. Then, input the MCU operation clock. For example, when you use the MCU operation clock (16 MHz) in the divided-by-2 mode, you need to set 8 MHz. For more details, please review:

PD30 V.4.00 User's Manual, p. 23, "Selection of Measurement resource of zone time measurement", and PD30 V.4.10 Release 1 Release Note, "5.13 About Time Measurement Window".

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Document Number: 01051016_e

Q.

When I open the existing log file, will the new data be added to the end of the existing data, will it overwrite the existing data?

A.

When you reopen a log file which has already been opened/closed after PD30 startup, the new data will be added to the end of the existing log file. However, when you open a log file that was created before PD30 startup, the contents will be overwritten.

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Last Updated: July 23, 2001
Document Number: 01072301_e

Q.

Can I debug an M16C/61 Group MCU (M30612) with M30620T-CPE, the M16C/62A of M16C/62 Group compact emulator?

A.

Yes, it is possible. But please note the following differences.
Compact Emulator M30620T-CPE comes with an M16C/62A Group Evaluation MCU.
Before starting your program debug, please confirm the following differences between M16C/61 Group and M16C/62 (as well as M16C/62A) Group MCUs.

- Differences between M16C/61 Group and M16C/62 Group MCUs are listed on
  Page 271 in 16C/62 GROUP DATA SHEET (PDF 3.5MB)

- Differences between M16C/62 Group and M16C/62A Group MCUs are listed on
  Page 269 in 16C/62A GROUP DATA SHEET (PDF 3.5MB)

Additionally, please review the following technical news:

- "Difference between M16C/62 and M16C/62A (including low voltage version)" (PDF 25KB)

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Last Updated: April 04, 2003
Document Number: 03030501_e

Q.

When I set an address match-interrupt at F8000h, the emulator malfunctions.

A.

When using the emulation pods for M16C/60, M16C/30, and M16C/20 series, you cannot set an address match-interrupt at addresses F6000h -- F63FFh and F8000h -- F83FFh. The emulator uses these areas during debug control. However, these areas can be set for the actual MCU.

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Last Updated: October 7, 2002
Document Number: 02092001_e

Q.

I modified the setting of the port P9 direction register in my program, but the setting doesn't change. What's the problem?

A.

1. The protect register (PRC2) needs to be set as well.
   However, after the protect register is set, it will clear to "0" when you write to any address. Therefore, make sure you reprogram the port P9 direction register immediately after you set the protect register.
   Make sure a write cycle due to an interrupt, DMA transfer, etc. hasn't occurred between the time the protect register is set and the port P9 direction register is reprogrammed. To do so, confirm the bus mode display in the trace window.

2. Make sure the port P92 is functioning as a port and not as a peripheral function.

3. For more information on using debug software, please refer to related FAQs on this homepage.

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Last Updated: April 20, 2000
Document Number: 01051114_e

Q.

Please supply the connection diagram for the through-holes of Flexible Cable FLX100 of the emulation pod.

A.

Please click here.

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Last Updated: March 5, 2002
Document Number: 02022004_e

Q.

I can't get a program to run in the memory expansion mode or microprocessor mode on an M16C/60 Series emulation pod, even though it runs in the single-chip mode. What could be the problem?

A.

In both the memory expansion mode and the microprocessor mode, the HOLD (P54) and RDY (P57) pins are valid.
Therefore, when the emulator has been turned on, or when you are using the debug controls (memory refresh, memory DUMP, etc.) while the user program is stopped, these pins will not work properly unless they are set to "H" level, as described below.

1. When connected to target system:
   Release the HOLD and READY status by setting the HOLD pin and RDY pin to "H" level. At this time, also set the reset pin and NMI pin to "H" level.

2. When not connected to target system (M30620T2-RPD-E):
   Release both the HOLD and READY status by attaching the resistor array (which comes with the pod) inside the pod and pulling it up.

3. When not connected to target system (M30620T-RPD-E/M30620TB-RPD-E):
   Release both the HOLD and READY status by pulling up the pins with the RDY/HOLD switch in the pod.

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Last Updated: March 5, 2002
Document Number: 02022001_e

Q.

I changed the setting of the port P9 direction register with the emulator debugger, but the status doesn't change. What's the problem?

A.

1. If you set the protect register (PRC2), which enables writing in the port P9 direction register, with the following procedure, the protect on the port will not be released and the port cannot be programmed.

   (1) Execute [instruction for setting "1" PRC2] step.

   (2) Set a break point from [instruction for setting "1" PRC2] to [setting the port P9 direction register or the register for the protect].

   (3) Set ["1" PRC2] from DUMP WINDOW, SCRIPT WINDOW, etc. while user program is running.

   (4) Set ["1" PRC2] from DUMP WINDOW, SCRIPT WINDOW, etc. while user program is stopped.

   After setting the protect register (PRC2), it will go to "0" when you write to any address. Therefore, program the direction register immediately after changing the protect register setting.

   To confirm that the port P9 direction register has been successfully programmed, stop the user program after you have written to the register and click on the "Clear" button in the RAM monitor window.

2. Also, make sure that the port P92 is set for port functions, not peripheral functions.

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Last Updated: October 19, 2001
Document Number: 01100503_e

Q.

I am using Emulation Pod M306N0T2-RPD-E (or M306N0TB-RPD-E) for the M16C/6N Group MCUs; however, the M16C/6N Group is the model recommended the change to the new model. When switching from either M16C/6N0 or M16C/6N1 to M16C/6NA or M16C/6NB, will it be necessary to purchase a new emulation pod as well?

A.

When replacing M16C/6N0 or M16C/6N1 with M16C/6NA or M16C/6NB, it will not be necessary to purchase a new emulation pod: both M306N0T2-RPD-E and M306N0TB-RPD-E will be compatible. However, if the serial number of the M306N0TB-RPD-E ends with a number or a letter from "A" to "F", you will need to upgrade to the next version, as explained in MAEC TOOL NEWS issued on February 1, 2001. This applies regardless of switching to M16C/6NA or M16C/6NB.

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Last Updated: September 5, 2001
Document Number: 01072304_e

Q.

How can I estimate how much more power will be consumed from the target system when connecting M30620T2-RPD-E or M306N0T2-RPD-E?

A.

All of the emulation pods listed below consume approximately 1mA of current from the target system Vcc pin (even during low-power consumption modes).

- M30620T2-RPD-E
- M30620TL-RPD-E
- M306V0T-RPD-E
- M306V2T-RPD-E
- M306K5T-RPD-E
- M306N0T2-RPD-E
- M306H1T-RPD-E

In addition, electrical characteristics of pins other than the Vcc also differ slightly from that of the actual MCU. For stable operations, make sure you use a stable power supply source to supply power to the emulation pod. The final evaluation of power consumption characteristics should be performed on the actual MCU when mounted.

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Last Updated: July 23, 2001
Document Number: 01051296_e

Q.

Can I debug an M16C/61 Group MCU (M30612) with M30620TB-RPD-E, the M16C/62 Group emulation pod?

A.

Yes, it is possible. But please confirm the following differences between M16C/61 Group and M16C/62 (as well as M16C/62A) Group MCUs before starting your program debug. The applicable pods are M30620T2-RPD-E and M30620TB-RPD-E.

- Differences between M16C/61 Group and M16C/62 Group MCUs are listed on
  Page 271 in 16C/62 GROUP DATA SHEET (PDF 3.5MB)

- Differences between M16C/62 Group and M16C/62A Group MCUs are listed on
  Page 269 in 16C/62A GROUP DATA SHEET (PDF 3.5MB)

Additionally, please review the following technical news:
"Difference between M16C/62 and M16C/62A (including low voltage version)" (PDF 25KB)

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Last Updated: January 22, 2001
Document Number: 01051118_e

Q.

I am using Emulation Pod M306xxTx-RPD-E with the 100LCC-80QSB pin-converter board, but the POWER LED on the STATUS OF TARGET side of Emulator PC4701 doesn't turn on.

A.

The POWER LED will not turn on when 100LCC-80QSB is used. Normally, the PC4701 confirms that power is properly supplied to the Vcc pins of the MCU, and then turns on the POWER LED. However, the 80-pin MCU has only one Vcc pin. So, when the pin-converter is used, only one Vcc pin can be connected to the 100-pin side (M16C/60, M16C/61, and M16C/62 Group 100-pin MCUs). Therefore, when the PC4701 tries to confirm the Vcc supply status, it can identify only one power supply and it does not turn on the POWER LED. Please note that even though the LED is not on, this does not indicate a debugging problem.

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Last Updated: July 5, 2000
Document Number: 01051297_e

Q.

My target system, which has been working with Emulation Pods M30620T-RPD-E/ M30620TB-RPD-E, does not work properly with Emulation Pod M30620T2-RPD-E. What are the differences between M30620TB-RPD-E and M30620T2-RPD-E?

A.

M30620T/TB-RPD-E and M30620T2-RPD-E have different wirings on pins RESET*/RDY*/HOLD*, as detailed below.

	RESET*/RDY*/HOLD*
M30620T2-RPD-E (Mass production)	When a target system is not connected to this pod, these pins are automatically pulled-up. When a target system is connected, these pins are not connected.
M30620T-RPD-E M30620TB-RPD-E (In production)	RESET* --> pulled-up in the pod. RDY*, HOLD* --> configurable by the switch in the pod for either pull-up or open.

Therefore, when pins RESET*/RDY*/HOLD* are left open,

- M30620T2-RPD-E does not work with the target system, but
- M30620T-RPD-E/M30620TB-RPD-E can work with the target system with the proper pod switch settings.

Please confirm the wiring conditions for pins RESET*/RDY*/HOLD* on your target system.

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Last Updated: July 5, 2000
Document Number: 01051298_e

Q.

Can I use Emulation Pod M30620T-RPD-E or M30620TB-RPD-E for M16C/62A debugging?

A.

As long as you do not use the added functions on the M16C/62A MCU, you should have no problems. If you must use the added functions, you will need to purchase the upgraded versions of M30620T-RPD-E or M30620TB-RPD-E, specifically for use with the M16C/62A MCU.
Please refer to the following MESC TOOL NEWS for the M16C/62A Emulation Pod upgrades:

"Announcement Remodeled M30620TB-RPD-E and M30620T-RPD-E for M16C/62A also support M16C/62" issued on February 16, 2000
"Announcement of Remodeling M16C/62 Pods (M30620T-RPD-E and M30620TB-RPD-E) to M16C/62A Ones" issued on December 16, 1999

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Last Updated: July 5, 2000
Document Number: 01051299_e

Q.

Concerning the extended A/D function of M30620T-RPD-E, M30620TB-RPD-E and M30620T2-RPD-E: when I use bit 0 of Port P0 for the A/D function,

1. can I use Bit 0 of Port P2 as an I/O port?
2. can I set Bit 0 of Port P10 as an input mode and use Bits 1 to 7 of Port P10 as I/O ports?

A.

M30620T-RPD-E, M30620TB-RPD-E and M30620T2-RPD-E are affected by the following limitations:

[When Port P0 is used as an A/D Input]

- All direction register bits (8 bits) of P107 to P100 must be set to "input."
- Pull-up control register for P107 to P100 must be set to "no pull-up."
- P107 to P100 cannot be used for both I/O ports and key interrupt inputs.

[When Port P2 is used as an A/D input]

- All direction register bits (8 bits) of P107 to P100 must be set to "input."
- Pull-up control register for P107 to P100 must be set to "no pull-up."
- P107 to P100 cannot be used for both I/O ports and key interrupt inputs.

[When Port P10 is used as an A/D input]

- No limitations.

Therefore, when bit 0 of Port P0 is used as an A/D input, [When Port P0 is used as an A/D Input] limitations apply as indicated:

1. Can Bit 0 of Port P2 be used as an I/O port?
   ===>Yes, it can.
2. Can Bits 1 to 7 of Port P10 be used as I/O ports while setting Bit 0 of Port P10 to input mode?
   ===>No, they cannot.

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Last Updated: July 5, 2000
Document Number: 01051300_e

Q.

The value at the fixed vector table is different from the value set in the program I downloaded. Why?

A.

Since the DBC* vector and BRK instruction vector are used by the emulator, the value on these vector addresses should be different from what you have specified.

In the emulator, the BRK vector is reserved for the emulator BRK instruction interrupt, and the emulator will modify this vector data. The vector Jump address (default address 2C00h) indicates the WORK AREA RAM that the PD30 uses. The PD30 modifies the vector value just before executing the user program. Therefore, you can see the downloaded vector as long as you have not executed the RUN command.

Please note that this is an emulator-related limitation.

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Last Updated: July 5, 2000
Document Number: 01051301_e

Q.

I would like to know the differences between M30620T2-RPD-E and M30620T-RPD-E/M30620TB-RPD-E.

A.

The differences are as follows:

	Operating Voltage	Operating Frequency	Corresponding MCU Group
M30620T2-RPD-E(Mass production)	2.7-5.5	10MHz at 2.7V (1 wait) 16MHz at 5.0V (0 wait)	M16C/62 Group (including A version)
M30620T-RPD-E(Discontinued product)	2.7-5.5	10MHz at 3.0V (1 wait) 10MHz at 5.0V (0 wait)	M16C/62 Group (excluding A version)
M30620TB-RPD-E(Discontinued product)	4.8-5.2	16MHz at 5.0V (0 wait)	same as above

For more details concerning M30620T2-RPD-E, please download the users manual from our Manual Download Site.

Note)
Revision upgrades for M16C/62 (A version) M30620T/TB-RPD-E must be purchased. Please refer to the MESC TOOL NEWS "Announcement of Remodeling M16C/62 Pods (M30620T-RPD-E and M30620TB-RPD-E) to M16C/62A Ones" issued on December 16, 1999.

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Last Updated: April 20, 2000
Document Number: 01051302_e

Q.

I invoke the PD30 emulator debugger and input "MAP 4000H, 027FFFh, EXTERNAL" in the SCRIPT WINDOW for the CS2 setup. Then, when I execute the "Go" command, my program malfunctions.

A.

The M16C/60 Series emulation pod uses 4 bytes of the emulation MCU stack (0FFFCh to 0FFFFh) after the "Reset" command is executed. When the memory location including this area is assigned in the external space by the "MAP" command and there is no RAM placed in the target system, the emulation MCU will not be able to set up the stack there. In this situation, if the "GO" command is executed, the emulation MCU executes the program from the wrong PC address. That is why your program malfunctions.

To avoid this problem in M30620T/TB-RPD-E, please carefully review page 15 of the instruction manual. For other emulation pods, please review Section 1 of the instruction manual, "Precautions for Safety".

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Last Updated: April 20, 2000
Document Number: 01051303_e

Q.

Just after the emulator power-on, the emulator will activate the memory area of chip select CS2 regardless of user program execution. Why?

A.

The M16C/60 Series emulation pod accesses area 0FFFCh to 0FFFFh (4 bytes) for the debugger stack space just after the reset command execution. Therefore, when the debugger executes the reset command, the emulation POD invokes the stack initialization program and then initiates the CS2 signal to active.

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Last Updated: April 20, 2000
Document Number: 01051304_e

Q.

I applied a reset from the target system in the emulator but the program did not work properly. Are there any differences between the emulator reset and the actual chip (Mask version MCU) reset? And, are there any differences when executing a reset from the emulator debugger PD30?

A.

1. Difference between the actual chip reset and the emulator reset
   In the emulation pod M30620T/TB-RPD-E, a reset input made in the target board goes into the gate array. Then, the gate array chip generates the reset to the MCU. If the reset signal transition of the target system is too long, the gate array chip in the M30620T/TB-RPD-E pod behaves strangely around the I/O threshold voltage of the gate array chip. Therefore, the reset input transition time (0.2 Vcc to 0.8 Vcc) of the target system must be held within 1 micro sec. There is no such restriction for the actual chip.

2. Difference between target system reset and PD30 Debugger reset
   A reset from PD30 is only possible during the user program stop state. On the other hand, a reset from target system is only possible during the user program execution state.

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Document Number: 01051305_e

Q.

After connecting the emulator to the M16C/62 Group emulation pod and executing a self-check, the emulator will not shut down normally. What's the problem?

A.

Please confirm the following items before executing the self-check:

1. Make sure the emulator is not connected to the target system.
2. Make sure switch SW5 is set to "L" and switch SW6 is set to "16" on the M16C/62 Group emulation pod.

For more details concerning the self-check, please refer to the emulator manual.
If the above suggestions do not solve your problem, please contact our office.

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Document Number: 01051306_e

Q.

The emulator and emulation pod are connected to the target system, but they do not operate (the emulator LED indicates an error). What's the problem?

A.

Please check these possible causes:

1. Make sure the emulator and host machine are properly connected. Refer to the emulator manual for details concerning the proper connection method.
   - connector on host machine side
   - connector on emulator transmission side
   - Do the emulator and host machine communication interfaces match?
2. Are the emulator and emulation pod properly connected using the cable (FLX120-RPD) which was included in the emulation pod package? Refer to the emulator manual for details concerning the proper connection method.
   - connector on emulator side
   - connector on emulation pod side
3. Are the emulation pod and pod probe (FLX-100LCC) properly connected?
4. Are the pod probe (FLX-100LCC) and target properly connected?
   The connection method differs according to the type of target. Click here for details.
5. Is the power supply voltage and GND being supplied to the target system?
6. Make sure the RESET port and NMI port on the target system are set to "HIGH".
7. If the target system uses an oscillator circuit, make sure it is oscillating properly.
8. Is the emulation pod switch set properly? Refer to the corresponding emulation pod manual for details on how to set the switch.
9. Check the setting of the corresponding pin for each MCU mode, referring to the MCU manual as necessary.
10. Make sure the that downloaded firmware correctly corresponds to the emulation pod used with the emulator. Refer to the emulator debugger manual for instructions on how to download the firmware.

If the above suggestions do not solve your problem, please contact our office.

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Document Number: 01051307_e

Q.

My emulation pod and emulator are connected, but the emulator won't turn on. What's the problem?

A.

Please check these possible causes:

1. Make sure the AC power supply cord is properly inserted in the outlet.
2. Make sure the AC power supply 3P-2P converter is properly inserted in the outlet.

If the above suggestions do not solve your problem, please contact our office.

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Last Updated: December 20, 1999
Document Number: 01050800_e

Q.

For some reason, I can not program my Renesas MCU. What are the possible problems?

A.

The most frequent problems we have found in our support experience are as follows.

1. Wrong Set-up --> Please review the installation manual carefully.
   (1) Reconfirm that the switches are correctly set for your MCU.
   (2) Reconfirm that your ROM programmer is installed with the accessory socket board which corresponds to our programming adapter.
   (3) Reconfirm that the programming block is properly mapped.
   (4) Reconfirm that your selected device mode is correct.

2. Bad contact due to non-conductive incrustation
   (1) Programming adapter pin head incrustation

   Greasy or rusty build-up on pin heads where contact is made to the ROM programmer often causes a bad connection. Clean adapter pin heads with an appropriate cleanser.

   (2) Junction incrustation or abrasion of ROM programmer socket

   Older ROM programmers often have a bad socket junction due to worn metal, distortion, or non-conductive incrustation. Many ROM programmers have a feature that allow you to replace the socket. We recommend replacing the socket of your ROM programmer if you haven't done so yet.
   (Note) The pin heads on our ROM programmer do not have the exact same shape as the EPROM chips. Although your ROM programmer may not accept our adapter, it will accept an EPROM due to this form factor difference.

   (3) Junction abrasion in programming adapter socket

   Our programming adapter is intended for software development but not for production programming. Therefore, the expected duration cycle of the adapter socket is around 5000 times. When you use the adapter for repetitive programming close to the socket duration time, the adapter may develop abrasions, etc. We recommend using a new adapter when you encounter this type of problem.

3. ROM programmer compatibility problem
   (1) Use of non-recommended ROM Programmer

   Our PROM MCUs do not have exactly the same characteristics as other EPROM chips. Therefore, some ROM programmers do not have the compatibility for programming our MCUs. Please use EPROM programmers which we have qualified. These recommended ROM programmers are listed in both the Programming Adapter Manual and EPROM MCU data sheets.

   (2) ROM programmer device identification code function

   Please do not use the device ID* function included in your EPROM programmer. This function might damage the MCU and the Programming Adapter. The device ID usually indicates the device characteristics and manufacturer and, therefore, will not match our MCU.
   * The nomenclature for "device ID" varies according to ROM programmer manufacturer: ID code, etc.

4. Programmer adapter problems

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Last Updated: December 20, 1999
Document Number: 01051051_e

Q.

Can I use a Renesas EPROM programming adapter, for example PCA7412F-100, to reprogram a Renesas Flash MCU?

A.

No, you can not. Please use a dedicated partner flash programmer for reprogramming our Flash MCUs.

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Last Updated: December 20, 1999
Document Number: 01050832_e

Q.

Can I use a gang-programmer in combination with an PROM MCU programming adapter.

A.

Renesas programming adapters for our EPROM MCUs are for development purposes only, not for production programming purposes. We do not recommend them for use with gang-programmers in mass-programming. Most of the gang-programmers which we have not qualified are not compatible with our PROM MCUs because they lack the block programming capability.

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Document Number: 01051052_e

Q.

Can I program with a ROM writer other than the ROM writers recommended by Renesas?

A.

We have no experience with any ROM writers which are not included on the recommended list. We can only recommend ROM writers for which we have actual programming results. If you wish to use a something other than those we have recommended, they should work if they pass the normal verification process. (Separate screening, etc. is also necessary.)

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Document Number: 01051053_e

Q.

How should I program the M16C/60 internal 128KB ROM?

A.

The following is the programming procedure for M30610EC.

1. Switch setting: JP1 in on 1M side
2. Area specification: 20000H to 3FFFFH (ROM writer)
   (00000H to 1FFFFH is also usable)
   E0000H to FFFFFH (MCU)
3. Programming mode: Renesas M5M27C201 Mode
4. Programming Type: byte programming type
5. Notes:
   When the 00000H to 1FFFFH area is specified in the M5M27C101 mode, the ROM writer will automatically go to the page programming mode because 00000H to 1FFFFH is the entire EPROM area. (M30610EC can not be programmed in the page programming mode.)

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FAQs

16-bit R8C/Tiny Series

August 20, 2004

HEW (Aug. 20, 2004) UP	Integrated Development Environment (attached to M3T-NC30WA and E7) "**H**igh-performance **E**mbedded **W**orkshop"
TM (Aug. 5, 2004)	Integrated Development Environment (attached to M3T-NC30WA)
SQMlint (June 21, 2004)	MISRA C Rule Checker
M3T-NC30WA (May 8, 2003)	C Compiler Package for M16C/60,30,Tiny,20,10 and R8C/Tiny Series (with AS30, HEW, TM and M3T-PD30SIM)
M3T-PD30SIM (June 5, 2003)	Simulator Debugger for M16C/60,30,Tiny,20,10 and R8C/Tiny Series (attached to M3T-NC30WA)
E7	On-chip debugging emulator (with HEW)
Others (Sep. 5, 2003)	User Registration, License ID, Guarantee and Repair, etc.

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16-bit 79xx Series

August 5, 2004

MM (Jan. 7, 2003)	Maskfile Converter MM
TM (Aug. 5, 2004) UP	Integrated Development Environment (attached to M3T-NC79WA)
M3T-NC79WA (June 21, 2004)	C Compiler Package (with AS79, TM and M3T-PD79SIM)
M3T-PD79SIM (Dec. 20, 2002)	Simulator Debugger (attached to M3T-NC79WA)
M3T-PD79 (Apr. 5, 2004)	Emulator Debugger
PDSDK COM Kit (Nov. 19, 2002)	Debugger Customization kit
PC4701 (Oct. 20, 2003)	Emulator for M16C, 7700, 740 Families PC4701U (Now!) PC4701M/PC4701HS/PC4701L/PC4700H/PC4700L (Discontinued Products)
M379xxT-RPD-E (July 5, 2000)	Emulation Pod
Accessories (Nov. 5, 2003)	Accessory Tools
Others (Sep. 5, 2003)	User Registration, License ID, Guarantee and Repair, etc.

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M3T-NC79WA C Compiler Package

See Tool News for this product

Last Updated: June 21, 2004

- I don't always get a warning even when I assign a constant to the variable declared by const statement. (June 21, 2004) NEW
- Using a program written for NC77 with NC79? (July 22, 2003)
- Tell me how to debug a program at the high-level language source level. (July 22, 2003)
- Is there any method to shorten the startup program's processing time? (July 22, 2003)
- Is there any method to compress the ROM capacity? (July 22, 2003)
- How are the near/far attributes discriminated? (July 22, 2003)
- When an optimize option is added, code is not generated for some lines. Is this all right? (July 22, 2003)
- Is the prototype declaration of a function necessary? (July 22, 2003)
- For the labels that are equivalent to function names, an error is output when linked, indication that they are undefined symbols. What is the cause of this error? (July 22, 2003)
- By what name will the function names written in the C language be represented in the assembly source? (July 22, 2003)
- A variable not accompanied by the register qualifier is handled as a register variable. Why? (July 22, 2003)
- I wish to specify a register storage class and assign it to a register. How can it be done? (July 22, 2003)
- Can a path be specified in a file name for #include specification? (July 22, 2003)
- How can a command file be used? (July 22, 2003)
- There are so many files to be linked that the limit to command lines is exceeded. Is there any method to link? (July 22, 2003)
- A command option sometimes cannot be specified. Why? (July 22, 2003)
- The stack overflowed even though I reserved the correct stack size as displayed in the Stk Viewer. Is the stack size shown in the Stk Viewer not enough? (May 8, 2003)
- Can I use KANJI(Chinese) characters in C source programs? (Nov. 19, 2001)
- I am using Integrated Development Environment TM V.3.01, and, after making additions to my program, I got the following message: "No. 6. Stk Viewer: Out of memory". What is the work-around for this? (Sep. 5, 2001)
- When programming a register access (write, read) to the interrupt control register in C language, NC79WA compiler generates codes based on the AND instruction. Yet the MCU manual indicates that the interrupt control register should be accessed with STA or MOV instructions. Can I have NC79WA generate STA and MOV instructions for this access? (Jul. 5, 2001)
- I made the following program(1) in C.
  Upon examining the generated codes, it seems that variable x (the operand) is compared with 5 before the variable increment. Is the following description(2) necessary in order to have variable x compared with 5 after the variable increment? (Jul. 5,

2001)
(1)

```
if (x++ == 5){
     aaasub();
}
```

(2)

```
x++;
if (x ==5){
    aaasub();
}
```

- When making my program in C language, I want to place the global variable according to the sequence described in the definition. How can I do this? (Dec. 20, 2000)

- When using NCxxWA, how can I prevent my application from linking unnecessary functions, such as MALLOC() and MEMCPY()? (Aug. 7, 2000)

- In the preprocess command block #ifdef to #endif, which performs the condition compile, I get an error when I describe a double quotation. Why? I don't get an error for any other character.
  I assume that if the respective identifier is macro-defined with #ifdef, the operation will not progress. (Mar. 21, 2000)

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Last Updated: June 21, 2004
Document Number: 04052001_e

Q.

I don't always get a warning even when I assign a constant to the variable declared by const statement.

A.

M3T-NC79WA only generates a warning when you use a simple assignment operator (=) to replace the variable declared by const statement. If you are using a compound assignment operator, such as += or -=, the MCU won't generate a warning.

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Last Updated: July 22, 2003
Document Number: 03072229_e

Q.

Using a program written for NC77 with NC79?

A.

1. The program is compatible as far as language is concerned for C compiler, but function names are treated differently on the assembler level. Make sure no labels have the same name as functions contained in the assembler.

	NC79	NC77
Functions having register arguments	$function	?function
Functions not having register arguments	_function	_function

2. Be sure to specify option -fDP_offset_8(fDP08) when executing NC79 compiler.

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Last Updated: July 22, 2003
Document Number: 03072214_e

Q.

Tell me how to debug a program at the high-level language source level.

A.

When executing a command, specify a command option which directs that the information necessary to debug a program in the source lines of C or those of structured statements be output to the machine language data file.

```
>nc79 -g -S -c samp79.c
>as79 -s ncrt0.a79 samp79.a79
>ln79 -g -o samp79 ncrt0 samp79 -l nc79lib.lib
```

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Last Updated: July 22, 2003
Document Number: 03072213_e

Q.

Is there any method to shorten the startup program's processing time?

A.

The processing time can be reduced by deleting unused parts from section initialization and zero clear operations in the startup program ncrt0.a79. Also, the processing time can be reduced by performing zero-clear operations collectively at a time.

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Last Updated: July 22, 2003
Document Number: 03072212_e

Q.

Is there any method to compress the ROM capacity?

A.

A method that is effective when array data exists in a far area and the data size does not exceed 64 Kbyte. If an array whose number of elements is unspecified exists in a far area, add an option -fSA(-fsmall_array) when compiling the program. The ROM capacity can be compressed, with the processing speed increased.

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Last Updated: July 22, 2003
Document Number: 03072211_e

Q.

How are the near/far attributes discriminated?

A.

If near/far are not specified, NC79 handles functions as belonging to far and variables as belonging to near.
Although variables normally are handled as near, the default attribute can be changed by specifying a command option.

- -ffar_ROM(-fFROM)
  The default attribute of ROM data is changed to far.
- -ffar_RAM(-fFRAM)
  The default attribute of RAM data is changed to far.

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Last Updated: July 22, 2003
Document Number: 03072210_e

Q.

When an optimize option is added, code is not generated for some lines. Is this all right?

A.

When an optimize option is specified, the compiler does not generate code which it assumes is syntactically meaningless.
If you want to suppress optimization, specify the volatile qualifier to disable optimization.

```
Example where code generation is optimized:
 * Function that only reads port
   extern int port;
   func()
   {
       port;
   }

Example where code generation is not optimized:
   volatile extern int port;
   func()
   {
       port;
   }
```

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Last Updated: July 22, 2003
Document Number: 03072209_e

Q.

Is the prototype declaration of a function necessary?

A.

By declaring the prototype of a function, you can suppress the function's argument type expansion or assign its arguments to a register. This helps to achieve efficient funtion call.

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Last Updated: July 22, 2003
Document Number: 03072208_e

Q.

For the labels that are equivalent to function names, an error is output when linked, indicating that they are undefined symbols. What is the cause of this error?

A.

There is a possibility that functions whose prototypes are declared and those not declared coexist.
To find a function whose prototype is not declared, specify a command option "-Wnon_prototype(-WNP)" before compiling the program. When the relevant function is encountered, a warning will be output. Declare prototype for the funtion thus found.

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Last Updated: July 22, 2003
Document Number: 03072207_e

Q.

By what name will the function names written in the C language be represented in the assembly source?

A.

Those function names in the assembly source appear as label names. For example, a functon name "func_proto" is expressed in the assembly source as "$func_proto:" or "_func_proto:".
Which label "$func_proto:" or "_func_proto:" will be selected in which case is determined according to rules as follows:

$func_proto
: A function where one or more arguments of the function are passed via register

_func_proto
: All other functions for which the above condition does not apply

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Last Updated: July 22, 2003
Document Number: 03072206_e

Q.

A variable not accompanied by the register qualifier is handled as a register variable. Why?

A.

When compiled after specifying an optimize option '-O', '-OR' or '-OS', it can occur as a result of optimization that such a variable is handled as a register variable.

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Last Updated: July 22, 2003
Document Number: 03072205_e

Q.

I wish to specify a register storage class and assign it to a register. How can it be done?

A.

Specify a register storage class for a local variable and to ensure that the variable is assigned to a register, specify a command option "-fenable_register(-fER)" when compiling. However, variables that have some type cannot be assigned to a register.

```
Example for declaring register variable:
   register int i
```

Also, when writing a register variable make sure it is not used in a function overlapping function calls.

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Last Updated: July 22, 2003
Document Number: 03072204_e

Q.

Can a path be specified in a file name for #include specification?

A.

A relative path name can be specified. The compiler searches a relative directory for the file specified by #include from a file where #include is written. Specifying an absolute path is inhibited, because it could impair program portability.
The following shows a description example when specifying src_1.h in the src_1.c file with #include.

```
Description of src_1.c:
   #include "..\header\src_1.h"
        :

File configuration:
   C:\work\src_1.c
   C:\work\src_2.c
        :
   C:\header\src_1.h
   C:\header\src_2.h
        :
```

Note!
In this case, if you write "\header\src_1.h" to specify the file name including a path, an error may result.

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Last Updated: July 22, 2003
Document Number: 03072203_e

Q.

How can a command file be used?

A.

Specify a command file when excuting the software. When specifying this file, add "@" at the beginning of its file name to discriminate it from ordinary other files.

```
Example for specifying a command file of ln79:
   >ln79 @cmdfile

Description example of a command file:
   sample
   -order ram1,prog1=0f0000
   -m -t
```

The command file in this example yields the same result as world be obtained by executing the ln79 command line shown below.

```
>ln79 sample -order ram1,pog1=0f0000 -m -t
```

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Last Updated: July 22, 2003
Document Number: 03072202_e

Q.

There are so many files to be linked that the limit to command lines is exceeded. Is there any method to link?

A.

The contents of command lines can be written into a file with which you can execute ln79. This file is called a "command file." For details about a command file, refer to HERE.

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Last Updated: July 22, 2003
Document Number: 03072201_e

Q.

A command option sometimes cannot be specified. Why?

A.

In NC79, command options are discriminated between uppercase and lowercase letters. When specifying a command option, check to see that the case of the option is correct.

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Last Updated: November 19, 2001
Document Number: 01112003_e

Q.

Can I use KANJI(Chinese) characters in C source programs?

A.

Yes, you can. Japanese characters can be used in NC79.
The following character types can be included.

- kanji
- hiragana
- full-size katakana
- half-size katakana

It is necessary to set up the environment variables to use Japanese characters. Please refer to NC79 User's Manual "Description of Japanese Characters" for setting method.

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Last Updated: July 5, 2001
Document Number: 01062002_e

Q.

When programming a register access (write, read) to the interrupt control register in C language, NC79WA compiler generates codes based on the AND instruction. Yet the MCU manual indicates that the interrupt control register should be accessed with STA or MOV instructions. Can I have NC79WA generate STA and MOV instructions for this access?

A.

The SFR area registers include some interrupt registers that must be accessed using specific assembler instructions. When you need to access the interrupt register with the STA or MOV instruction, use the asm function in your C program, which will allow you to describe the register access with either instruction.

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Last Updated: March 21, 2000
Document Number: 01051295_e

Q.

In the preprocess command block #ifdef to #endif, which performs the condition compile, I get an error when I describe a double quotation. Why? I don't get an error for any other character.

I assume that if the respective identifier is macro-defined with #ifdef, the operation will not progress.

A.

The NC79WA performs the #ifdef analysis after the token analysis. Therefore, the NC79WA will generate an error if the following statement is enclosed in quotations.

```
#ifdef NEVER

    "    /*double quotation marks*/

#endif
```

Reference info:

The NC79WA specification is construction so that ANSI is dependent on the compiler (in other words, undefined). The results from other compilers are as described below. As understood from these results, operations differ according to the compiler.

(1) Will the next source be an error?

```
#ifdef NEVER

    "    /*double quotation marks*/

#endif
```

```
SUNOS   cc              no error
Solaris cc              no error
gcc -traditional-cpp    no error
gcc                     error
                        ("unterminated string or character constant")
ncXXwa                  error
                        ("new_line in string")
```

(2) Will the next source be an error?

```
 #if 0
 /* comment
 #endif
```

```
SUNOS   cc              error
                        ("missing */")
Solaris cc              no error
                        ("Warning: this file closed during the comment")
gcc -traditional-cpp    error
                         ("unterminated comment")
gcc                     error
                         ("unterminated comment")
cpp30                   error
                         ("EOF in comment")
```

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M3T-PD79SIM Simulator Debugger

See Tool News for this product

Last Updated: December 20, 2002

- I created a button in the GUI Input Window and then saved it, but when I restart M3T-PD79SIM (or M3T-PD77SIM, M3T-PD38SIM) I get the following message. (Dec. 20, 2002)*New!*

  "ERROR 21001: BUTTON file is illegal"

- I want to setup interval data sampling using the OnTimer function the CB79SIM. Please tell me the LSB for the interval to be set in _win_timer_set. The manual indicates milliseconds (ms). However, based on my tests so far, when I set 1000ms or more, I have no problem, but when I set 10ms as the interval, the actual interval is around 50ms. (Feb. 20, 2002)

- To execute a source compile on the M3T-NC79WA, I treat the enumerator by the generated code modifying option "-fCE" as an unsigned char type, rather than int type. However, when I reference the enumerator type variable with the M3T-PD79SIM (display by moving the mouse curser to the variable), it displays the form in 16 bits instead. Why? (Dec. 20, 2001)

- How should I set Timer A0 for MR79 when executing a program, which embeds MR79, on PD79SIM? (Oct. 5, 2001)

- How do I reference local bit symbols with PD79SIM? (Sep. 5, 2001)

- I get an error and I can not use the custom commands when I:

  1. Use the OPEN button in the script window to open a *.scr file which is not in the same directory as PDxx.EXE,
  2. then execute a custom command, in the script window, which exists in the same directory as PDxx.EXE does.

  I realize I can execute custom commands by placing the *.scr file in the same directory as the PDxx.EXE, but in this case having to put both in the same directory is not convenient. (Nov. 19, 1999)

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Last Updated: December 20, 2002
Document Number: 02120502_e

Q.

I created a button in the GUI Input Window and then saved it, but when I restart M3T-PD79SIM (or M3T-PD77SIM, M3T-PD38SIM) I get the following message.

"ERROR 21001: BUTTON file is illegal"

A.

When creating a button in the GUI Input Window, if a space is included in "Button Name:", the button file will not load properly and ERROR 21001 will be generated. Make sure that, when specifying "Button Name:" you do not include a space in the actual name that follows.

In the same manner, when creating a label in the GUI Output Window, make sure you do not include a space when specifying "Name1:" or "Name2:".

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Last Updated: February 20, 2002
Document Number: 02020509_e

Q.

I want to setup interval data sampling using the OnTimer function the CB79SIM. Please tell me the LSB for the interval to be set in _win_timer_set. The manual indicates milliseconds (ms). However, based on my tests so far, when I set 1000ms or more, I have no problem, but when I set 10ms as the interval, the actual interval is around 50ms.

A.

In Windows 98/95, the shortest interval available when generating timer events is around 55ms. Therefore, if you are using Windows 98/95, even if you set the interval in _win_timer_set to 10ms, the timer events will be generated every 55ms or so.

We think, in Windows 2000, the interval depends on the PC environment (motherboard, etc.).
In addition, when a timer event is generated, the timer message goes to the message queue in the application. The application doesn't necessarily receive the timer message at the specified interval, and Windows operations may cause a delay. When setting data sampling, etc., please keep in mind that the timer event intervals are not accurate.

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Last Updated: December 20, 2001
Document Number: 01120511_e

Q.

To execute a source compile on the M3T-NC79WA, I treat the enumerator by the generated code modifying option "-fCE" as an unsigned char type, rather than int type. However, when I reference the enumerator type variable with the M3T-PD79SIM (display by moving the mouse curser to the variable), it displays the form in 16 bits instead. Why?

A.

The enumerator type variables are treated as 2-byte variables by the M3T-PD79SIM. Even if you specify the enumerator as a 1-byte variable in the compiler, the enumerator type variable will be displayed in 2 bytes. However, you can reference the variable correctly by casting and registering it in the C-watch window, as done in the program below.

```
[Example Program]
---------------------------------
    typedef enum eTag {
      ENUM0=0,
      ENUM1,
      ENUM2,
         ...
    } ENUMTYPE;

    ENUMTYPE enEnum;
---------------------------------

[Example of Registration in C Watch Window]
---------------------------------
(eTag)(unsigned char)enEnum
---------------------------------
```

When registering in the C watch window, make sure you cast with [enumerator tag (shown as "eTag" above)]. Do not cast with the type you declared in typedef.
For more details, please refer to MAEC TOOL NEWS "PD32RSIM, PD308SIM, PD30SIM, PD79SIM, PD77SIM, PD38SIM, PD32000, PD32R, PD308, PD30, PD79, PD77, PD38, PD308M, and PD30M Precautions" issued on August 1, 2001.

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Last Updated: October 5, 2001
Document Number: 01092004_e

Q.

How should I set Timer A0 for MR79 when executing a program, which embeds MR79, on PD79SIM?

A.

Follow the I/O script sample program included in PD79SIM: Load the sample program for the MR79 timer (mr.scr) in the I/O window. Refer to "Introducing I/O Script Sample Programs" (31KB, 12 pages) in the manual for more details.

When using the sample program (timerA0_TMode.scr) for Timer A0 (timer mode), add the following procedure to the final line of the program.

```
{
    while(1){
        pass #iswrite:0x47, 1     ;Monitor write to Timer A0 register.
        set %tm_reload_reg = [0x46].w   ;Store value of Timer A0 register in reload
register.
    }
}
```

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Last Updated: September 5, 2001
Document Number: 01072306_e

Q.

How do I reference local bit symbols with PD79SIM?

A.

To reference local bit symbols with PD79SIM while assembling with as79, specify the "-S" or "-SM" option.
Note that local bit symbols can only by referenced when the program being executed is stopped in the source file which defines the symbols.

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M3T-PD79 Emulator Debugger

See Tool News for this product

Last Updated: April 5, 2004

- When I am debugging my program, sometimes I can't open Time Measurement Window. How can I measure the interval time? (Apr. 5, 2004) NEW
- I can't start up my debugger with the USB interface even though I have used it successfully before. What's the problem? (Feb. 5, 2004)
- I can't install the USB Driver successfully. What could be the problem? (Feb. 5, 2004)
- I just upgraded my PC operating system to Windows 2000 and the emulator debugger I am using won't work anymore. I am using the Parallel Interface Board (PCA4202G02) to connect the PC and emulator. What's the problem? (Dec. 20, 2002)
- I want to setup interval data sampling using the OnTimer function the CB79. Please tell me the LSB for the interval to be set in _win_timer_set. The manual indicates milliseconds (ms). However, based on my tests so far, when I set 1000ms or more, I have no problem, but when I set 10ms as the interval, the actual interval is around 50ms. (Feb. 20, 2002)
- To execute a source compile on the M3T-NC79WA, I treat the enumerator by the generated code modifying option "-fCE" as an unsigned char type, rather than int type. However, when I reference the enumerator type variable with the M3T-PD79 (display by moving the mouse curser to the variable), it displays the form in 16 bits instead. Why? (Dec. 20, 2001)
- Can PCA4202G02, the dedicated parallel-interface board for emulator systems PC4701 and PC4816B, be used with Windows 2000/NT 4.0? (Nov. 5, 2001)
- How do I reference local bit symbols with PD79? (Sep. 5, 2001)
- Is there anything I need to know about using PD79 with a LAN connection? (Sep. 20, 2000)
- I plan on adding a LAN card to my notebook PC for connection with the Renesas emulator. Does Renesas recommend certain LAN cards or have operation tests for specific LAN cards? (Sep. 20, 2000)
- Is a hub necessary even when I use the emulator in a stand-alone environment? I want to connect my PC and PC4701HS directly. (Sep. 20, 2000)
- Can I use a LAN connection with my notebook PC? If so, is there any special setup I need to perform? (Sep. 20, 2000)
- Selecting the memory expansion mode while connecting MD0 and MD1 pins to GND enables the processor mode in the target system. What should I select for the EMEM processor mode in the above conditions? (Aug. 25, 2000)
- Every time I startup the PD79 debugger, I get the following error message: "Processor mode and target system do not match". This message is displayed no matter what processor mode I specify. How can I avoid this error message? (Aug. 25, 2000)
- Does the PDxx operation affect the emulator MCU execution speed or conditions? I would like to know how the PC4701 reads out data from the emulation MCU in real-time. (Jul. 5, 2000)
- How can I find out the type and license ID of the emulator debuggers included in the CD-ROM that comes bundled with Emulators PC4701U/PC4701M? (July 22, 2003)
- I am using the PDxx emulator debugger on my notebook PC. And I use the serial interface for the emulator connection. Sometimes, while I am using the RAM monitor window, my target program hangs up. Does the PDxx debugger have a compatibility problem with my PC? Do I have to have a special setting for my OS version? (Jul. 5, 2000)

- 1. When using M3T-PDxx (M3T-PD308, M3T-PD30, M3T-PD79, M3T-PD77, M3T-PD38) with PC4701U/PC4701M, the emulator serial number must be input during the M3T-PDxx installation. But what happens when I install using a PC4701U/PC4701M with a different serial number?
  2. Can I use the M3T-PDxx bundled in the "Debug Tools" (formerly called "PDxx service pack") for the PC4701U/PC4701M with any other PC4701 emulator besides PC4701U/PC4701M? (July 22, 2003)

- I get an error and I can not use the custom commands when I:
  1. Use the OPEN button in the script window to open a *.scr file which is not in the same directory as PDxx.EXE,
  2. then execute a custom command, in the script window, which exists in the same directory as PDxx.EXE does.

  I realize I can execute custom commands by placing the *.scr file in the same directory as the PDxx.EXE, but in this case having to put both in the same directory is not convenient. (Nov. 19, 1999)

- I want to refer to the data at address 0x46x and 0x500 from the RAM monitor window, but because the real-time RAM monitor function specifies that the memory must continually be 1K bytes, I can not refer to both at the same time. Is there any way to separate the RAM monitor area into sections? (Nov. 19, 1999)

- In PD79 V.1.10, the setMemoryWord command (MW command) modifies the memory contents of a specified address in 2-byte units. When I use this command to change the memory contents at an even address, the upper 8 bits are not changed. Yet, if I specify an odd address, I have no problem. (Nov. 19, 1999)

- Why doesn't PD79 V.1.10 display task names in the TaskTrace window (task names were displayed in PD79 V.1.00)? (Nov. 19, 1999)

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Last Updated: April 5, 2004
Document Number: 04030503_e

Q.

When I am debugging my program, sometimes I can't open Time Measurement Window. How can I measure the interval time?

A.

Time Measurement Window cannot be opened when any of the following windows are open.

- Trace Point Setting Window
- Task Trace Window
- Task Analyze Window

Make sure all of these windows are closed before trying to open Time Measurement Window.

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Last Updated: February 20, 2002
Document Number: 02020510_e

Q.

I want to setup interval data sampling using the OnTimer function the CB79. Please tell me the LSB for the interval to be set in _win_timer_set. The manual indicates milliseconds (ms). However, based on my tests so far, when I set 1000ms or more, I have no problem, but when I set 10ms as the interval, the actual interval is around 50ms.

A.

In Windows 98/95, the shortest interval available when generating timer events is around 55ms. Therefore, if you are using Windows 98/95, even if you set the interval in _win_timer_set to 10ms, the timer events will be generated every 55ms or so.

We think, in Windows 2000, the interval depends on the PC environment (motherboard, etc.).
In addition, when a timer event is generated, the timer message goes to the message queue in the application. The application doesn't necessarily receive the timer message at the specified interval, and Windows operations may cause a delay. When setting data sampling, etc., please keep in mind that the timer event intervals are not accurate.

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Last Updated: December 20, 2001
Document Number: 01120510_e

Q.

To execute a source compile on the M3T-NC79WA, I treat the enumerator by the generated code modifying option "-fCE" as an unsigned char type, rather than int type. However, when I reference the enumerator type variable with the M3T-PD79 (display by moving the mouse curser to the variable), it displays the form in 16 bits instead. Why?

A.

The enumerator type variables are treated as 2-byte variables by the M3T-PD79. Even if you specify the enumerator as a 1-byte variable in the compiler, the enumerator type variable will be displayed in 2 bytes. However, you can reference the variable correctly by casting and registering it in the C-watch window, as done in the program below.

```
[Example Program]
---------------------------------
    typedef enum eTag {
      ENUM0=0,
      ENUM1,
      ENUM2,
         ...
    } ENUMTYPE;

    ENUMTYPE enEnum;
---------------------------------

[Example of Registration in C Watch Window]
---------------------------------
(eTag)(unsigned char)enEnum
---------------------------------
```

When registering in the C watch window, make sure you cast with [enumerator tag (shown as "eTag" above)]. Do not cast with the type you declared in typedef.
For more details, please refer to MAEC TOOL NEWS "PD32RSIM, PD308SIM, PD30SIM, PD79SIM, PD77SIM, PD38SIM, PD32000, PD32R, PD308, PD30, PD79, PD77, PD38, PD308M, and PD30M Precautions" issued on August 1, 2001.

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Last Updated: September 5, 2001
Document Number: 01072307_e

Q.

How do I reference local bit symbols with PD79?

A.

To reference local bit symbols with PD79 while assembling with as79, specify the "-S" or "-SM" option.
Note that local bit symbols can only by referenced when the program being executed is stopped in the source file which defines the symbols.

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Last Updated: September 20, 2000
Document Number: 01050930_e

Q.

Is there anything I need to know about using PD79 with a LAN connection?

A.

Please be aware of the following points:

1. Before connecting PD79 with the LAN, make sure you set the emulator IP address and download the firmware using the serial connection.

2. When connecting the LAN on Windows 98, you will need to setup the following registry.
   [Registry Setup for Windows 98]

   Location: "HKEY_LOCAL_MACHINE\System\CurrentControlSet\Services\VXD\MSTCP"
   Entry: "SackOpts"
   Value: "0"

   A utility program for setting up this registry is bundled with PD79 V.2.10 Release 1 or later. For details concerning the utility, please refer to Release Note "Note about LAN communication with emulators on Windows 98" or MESC TOOL NEWS "Information on Windows 98 Hosted Mitsubishi Development Support Tools No. 2 " issued on December 1, 1998.

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Last Updated: August 25, 2000
Document Number: 01050931_e

Q.

Selecting the memory expansion mode while connecting MD0 and MD1 pins to GND enables the processor mode in the target system. What should I select for the EMEM processor mode in the above conditions?

A.

Specify the one of the following, based on the BYTE pin setting:

BYTE Pin Setting	EMEM Setting
When Byte pin is connected to Vss (GND)	Set Memory Expansion to 16-bit
When Byte pin is connected to Vcc	Set Memory Expansion to 8-bit

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Last Updated: August 25, 2000
Document Number: 01050932_e

Q.

Every time I startup the PD79 debugger, I get the following error message: "Processor mode and target system do not match". This message is displayed no matter what processor mode I specify. How can I avoid this error message?

A.

1. Check to make sure that the voltage of the Vss pin is GND (0V). The same error will occur if the single chip mode or memory expansion mode is selected in the EMEM dialog when MD0 and MD1 pin levels differ from the Vss pin voltage.
2. Make sure the BYTE pin is left open (floating).
3. This error massage may happen when any connection point between the target and the POD has a loose or bad connection. Please check every target and POD contact point.

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Last Updated: November 19, 1999
Document Number: 01050933_e

Q.

In PD79 V.1.10, the setMemoryWord command (MW command) modifies the memory contents of a specified address in 2-byte units. When I use this command to change the memory contents at an even address, the upper 8 bits are not changed. Yet, if I specify an odd address, I have no problem.

A.

In the PD79, there are some places where the upper 8 bits can not be programmed with the MW command. You can work around this problem by using the Fill Word (FW) command. The FW command expression consists of FW start address, end address, and data. (This problem is discussed in detail in MESC TOOL NEWS issued on March 1, 1999.)

```
Input example:
              MW 100000, 1234
                   |
                   V
              FW 100000, 100001, 1234
```

This problem has been corrected in PD79 V.2.00 Release 1 and all later versions. We provide the latest version of PD79 in our Online Upgrade Site. Please, download it and upgrade your PD79.

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Last Updated: November 19, 1999
Document Number: 01050934_e

Q.

Why doesn't PD79 V.1.10 display task names in the TaskTrace window (task names were displayed in PD79 V.1.00)?

A.

The information concerning that particular task has probably been changed or no longer remains in the contents of the memory. The address of that task is normally included in that memory area. The TaskTrace Window obtains an address from that area and displays the task name which is assigned to that address. If an incorrect address is displayed, the task name can not be obtained from that address. Therefore, the column which is supposed to display the task name appears something like (------).

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M379xxT-RPD-E Emulation Pod for 79xx Series

See Tool News for this product

Last Updated: July 5, 2000

- Is the power supply (VDD) to the emulator MCU in the M37902T-RPD-E pod only supplied from the ICE system? How is the power supply (VCC) from the target configured in the pod? When there is electric potential difference in the power supplied to the pod and the target power supply, what happens to the I/O port output, etc.? (Jul. 5, 2000)

- What do we have to pay attention to concerning the 7920 Group (M37920S4CGP) debugging functions? (Jul. 5, 2000)

- I want to develop a system with a 7920 Group (M37920S4CGP) MCU. Which ICE, M37920T-RPD-E emulation pod or M37900T2-RPD-E emulation pod + M37920T-PRB pod probe, do you recommend? Are there any feature differences between these two choices? (Jul. 5, 2000)

- I want to supply a clock to the XIN pin of the target MCU and leave the XOUT pin open. But the emulation pod already has the oscillation circuit on the OSC-3 board. (Apr. 20, 2000)
    1. When I invoke the PD79 emulator debugger and select the internal clock (the emulation pod internal oscillation circuit), should I be aware of any affect the XIN clock input will receive from the target system? And, in the opposite situation: what about when selecting the external clock in the debugger and concerns of the influence from the pod internal clock?
    2. When I switch the clock source in the PD79 emulator debugger, how does the emulation pod hardware select the clock source from either the pod internal clock or the target XIN pin clock supply?

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Last Updated: July 5, 2000
Document Number: 01051025_e

Q.

Is the power supply (VDD) to the emulator MCU in the M37902T-RPD-E pod only supplied from the ICE system? How is the power supply (VCC) from the target configured in the pod? When there is electric potential difference in the power supplied to the pod and the target power supply, what happens to the I/O port output, etc.?

A.

The supply (VDD) of the emulator MCU is first connected to the jumper switch in the following configurations.

5V : 5.0 ± 0.1V is supplied regardless of the target supply system.
3.3V : 3.3 ± 0.1V is supplied regardless of the target supply system.
SENSE : voltage difference ± 0.1V is supplied from the ICE by sensing the target system supply voltage. If there is no target connected or the supply of the target is more than 5V, the ICE supplies 5V power to the MCU automatically.

In any situation, the power is always generated and supplied by the ICE yet still monitors the target voltage supply. If there is a miss-matched switch setting or a slight voltage difference between the ICE and the target, a leaking current will continually flow from all pins of the emulation MCU at the 5V/3.3V setting.
When using a 5.0V MCU, to lesson the difference with the target supply voltage (ex. 4.5V), please set the jumper switch to the "SENSE" position, which will minimize any leaking current problem.
When you use the 3.3V version MCU, if you set the switch to the "SENSE" position without connection to target, 5V power will be supplied to the MCU, which may damage the MCU.

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Last Updated: July 5, 2000
Document Number: 01051026_e

Q.

What do we have to pay attention to concerning the 7920 Group (M37920S4CGP) debugging functions?

A.

The emulation pod for 7920 Group MCUs is based on the M37920FGCGS emulator MCU, which embeds a Flash ROM. To debug the M37920S4CGP chip, the emulator MCU must operate in the microprocessor mode. This Flash MCU keeps Ports 0 to P12 in the "HiZ" state during reset. The M37920S4CGP chip does not behave in this way. So the user must pay attention to the reset pin characteristics, which are described in the usage notes.

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Last Updated: July 5, 2000
Document Number: 01051027_e

Q.

I want to develop a system with a 7920 Group (M37920S4CGP) MCU. Which ICE,

M37920T-RPD-E emulation pod
or
M37900T2-RPD-E emulation pod + M37920T-PRB pod probe,

do you recommend? Are there any feature differences between these two choices?

A.

M37920T-RPD-E and M37900T2-RPD-E + M37920T-PRB have no differences in the debug functions. However, M37900T2-RPD-E + M37920T-PRB has the following merits and demerits when compared to M37920T-RPD-E. Also, in the future, we plan to expand the series based on the M379xxT-PRB, and therefore recommend using M37900T2-RPD-E + M37920T-PRB for your system.

Merits:

- The emulation MCU is located on the target system making the electric characteristics better than on the other pod.
- Upgrades to other 7900 Series MCUs, such as the 7906 Group, are easier and cheaper.

Demerits:

- The dimensions of the M37920T-PRB board are about 70mm × 70mm. The user must pay special attention to the pod mounting on the target, making sure the heights of other components around the pod do not block pod insertion.
- As the M37920T-PRB is sold separately, the initial cost is a bit higher.

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Last Updated: April 20, 2000
Document Number: 01051028_e

Q.

I want to supply a clock to the XIN pin of the target MCU and leave the XOUT pin open. But the emulation pod already has the oscillation circuit on the OSC-3 board.

1. When I invoke the PD79 emulator debugger and select the internal clock (the emulation pod internal oscillation circuit), should I be aware of any affect the XIN clock input will receive from the target system? And, in the opposite situation: what about when selecting the external clock in the debugger and concerns of the influence from the pod internal clock?
2. When I switch the clock source in the PD79 emulator debugger, how does the emulation pod hardware select the clock source from either the pod internal clock or the target XIN pin clock supply?

A.

1. You do not need to be concerned about the affect on the pod internal clock from the target system XIN clock supply, even when you select the clock input in the debugger.
2. Both clock signals (the target system XIN pin clock supply and the pod internal clock circuit) are brought through the control gate array chip in the emulation pod independently. Then, the gate array chip selects either clock by the debugger command and supplies the clock to the XIN pin of the emulation MCU.

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FAQs

16-bit 77xx Series

August 5, 2004

MM (Jan. 7, 2003)	Maskfile Converter MM
TM (Aug. 5, 2004) UP	Integrated Development Environment (attached to M3T-NC77WA)
M3T-NC77WA (July 22, 2003)	C Compiler Package (with M3T-RASM77, TM and M3T-PD77SIM)
M3T-PD77SIM (May 20, 2003)	Simulator Debugger (attached to M3T-NC77WA)
PC4701 System	
M3T-PD77 (Apr. 5, 2004)	Emulator Debugger for PC4701 Emulators
PDSDK COM Kit (Nov. 19, 2002)	Debugger Customization kit
PC4701 (Oct. 20, 2003)	Emulator for M16C, 7700, 740 Families PC4701U (Now!) PC4701M/PC4701HS/PC4701L/PC4700H/PC4700L (Discontinued Products)
M377xxT-RPD-E (Aug. 20, 2002)	Emulation Pod for PC4701 Emulators
PCAxxxxxx-xxxx (Jan. 9, 2004)	Programming Adapter
Accessories (Nov. 5, 2003)	Accessory Tools
Others (Sep. 5, 2003)	User Registration, License ID, Guarantee and Repair, etc.

Discontinued Products	
M377xxT-PAC (Oct. 5, 2000)	Simple Tool System Package for 7702/7733/7735 Group (Discontinued Product)
PC4816 System (Discontinued Product)	
M3T-PDB77 (Aug. 25, 2000)	Emulator Debugger for PC4816B Emulator (Discontinued Product)
PC4816B (Aug. 25, 2000)	Emulator for 77xx Series (Discontinued Product)
M377xxTx-HPD (July 5, 2000)	Emulation Pod for PC4816B Emulator (Discontinued Product)

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M3T-NC77WA (including NC77) C Compiler Package

See Tool News for this product

Last Updated: July 22, 2003

- Tell me how to debug a program at the high-level language source level. (July 22, 2003)*New!*
- Is there any method to shorten the startup program's processing time? (July 22, 2003)*New!*
- Is there any method to compress the ROM capacity? (July 22, 2003)*New!*
- How are the near/far attributes discriminated? (July 22, 2003)*New!*
- When an optimize option is added, code is not generated for some lines. Is this all right? (July 22, 2003)*New!*
- Is the prototype declaration of a function necessary? (July 22, 2003)*New!*
- For the labels that are equivalent to function names, an error is output when linked, indication that they are undefined symbols. What is the cause of this error? (July 22, 2003)*New!*
- By what name will the function names written in the C language be represented in the assembly source? (July 22, 2003)*New!*
- A variable not accompanied by the register qualifier is handled as a register variable. Why? (July 22, 2003)*New!*
- I wish to specify a register storage class and assign it to a register. How can it be done? (July 22, 2003)*New!*
- Can a path be specified in a file name for #include specification? (July 22, 2003)*New!*
- How can a command file be used? (July 22, 2003)*New!*
- There are so many files to be linked that the limit to command lines is exceeded. Is there any method to link? (July 22, 2003)*New!*
- A commnad option sometimes cannnot be specified. Why? (July 22, 2003)*New!*
- I executed "stk77 -s symbol-file-name" specifying option -o which outputs the stack size and function call relationship to the calculation display file (extension .siz), but that file name was not generated with "symbol-file-name.siz". (May 20, 2003)
- Can I use KANJI(Chinese) characters in C source programs? (Nov. 20, 2001)
- I made the following program in C.(1)
  Upon examining the generated codes, it seems that variable x (the operand) is compared with 5 before the variable increment. Is the following description (2) necessary in order to have variable x compared with 5 after the variable increment?(Jul. 5, 2001)
  (1)

```
if (x++ == 5){
     aaasub();
}
```

  (2)

```
    x++;
    if (x ==5){
        aaasub();
    }
```

- When making my program in C language, I want to place the global variable according to the sequence described in the definition. How can I do this? (Dec. 20, 2000)
- When using NCxxWA, how can I prevent my application from linking unnecessary functions, such as MALLOC() and MEMCPY()? (Aug. 7, 2000)
- I can not place the program in the section which I defined. Why not? (Mar. 21, 2000)
- Programs which are not defined by "#pragma SECTION program" are always placed in section program_F. Is there any way to change this? (Mar. 21, 2000)
- My main program does not seem to be placed in section program_N. How can I place my main program in this section? (Mar. 21, 2000)
- Can a binary (HEX) file be divided into multiple files? I want to make individual HEX files for internal and external ROMs. (Mar. 21, 2000)
- How can a section be divided into multiple sections? Currently my program is sectioned into 001000H to 00F00FH and 010000H to 01EFFFFH. But I want to place my program from 130000H as well. (Mar. 21, 2000)
- My port access statement is not properly generated as a binary code when I use the optimization option. Why not?
- When I am linking my program, the linker generates this error: 'function-name' value is undefined. But the function itself actually exists. What's wrong?
- Since sequential bit accesses are grouped into one operation, an interrupt occurring during this operation sometimes causes my program to mis-operate. What can I do to avoid this?
- It takes so long to compile my program in Windows 3.1, DOS version (IBE). Is there any way to speed up the process?
- When compiling with the NC77 V.5.00 (non-optimized), the code size is sometimes larger than in the NC77 V.4.00 and all earlier versions. Why?
- When I execute the NC77 on Windows 95 'can't analyze error' is displayed and NC77 stops compiling my program. What's wrong?

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Last Updated: July 22, 2003
Document Number: 03072221_e

Q.

Tell me how to debug a program at the high-level language source level.

A.

When executing a command, specify a command option which directs that the information necessary to debug a program in the source lines of C or those of structured statements be output to the machine language data file.

```
>nc77 -gie -c samp77.c
>rasm77 -s ncrt0.a77
>link77 ncrt0 samp77,,,-ms -s -fsamp77
>s2ie samp77.sym
```

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Last Updated: July 22, 2003
Document Number: 03072220_e

Q.

Is there any method to shorten the startup program's processing time?

A.

The processing time can be reduced by deleting unused parts from section initialization adn zero clear operations in the startup program ncrt0.a77. Also, the processing time can be reduced by performing zero-clear operations collectively at a time.

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Last Updated: July 22, 2003
Document Number: 03072219_e

Q.

How are the near/far attributes discriminated?

A.

If near/far are not specified, NC77 handles functions as belonging to far and variables as belonging to near.
Although variables normally are handled as near, the default attribute can be changed by specifying a command option.

-ffar_ROM(-fFROM)

The default attribute of ROM data is changed to far.

-ffar_RAM(-fFRAM)

The default attribute of RAM data is changed to far.

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Last Updated: July 22, 2003
Document Number: 03072218_e

Q.

By what name will the function names written in the C language be represented in the assembly source?

A.

Those function names in the assembly source appear as label names. For example, a function name "func_proto" is expressed in the assembly source as "?func_proto:" or "_func_proto:".
Which label "?func_proto:" or "_func_proto:" will be selected in which case is determined according to rules as follows:

?func_proto

A function where one or more arguments of the function are passed via register

_func_proto

All other functions for which the above condition does not apply

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Last Updated: July 22, 2003
Document Number: 03072217_e

Q.

How can a command file be used?

A.

Specify a command file when executing the software. When specifying this file, add "@" at the beginning of its file name to discriminate it from ordinary other files.

```
Example for specifying a command file of link77:
   >link77 @cmdfile

Description example of a command file:
   MAIN SUB
   ,
   ,WORKRAM=100 PROM=C000 DROM
   ,,
```

The command file in this example yields the same result as would be obtained by executing the link77 command line shown below.

```
>link77 MAIN SUB,,WORKRAM=100 PROM=C000 DROM,,
```

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Last Updated: July 22, 2003
Document Number: 03072216_e

Q.

There are so many files to be linked that the limit to command lines is exceeded. Is there any method to link?

A.

The contents of command lines can be written into a file with which you can execute link77. This file is called a "command file." For details about a command file, refer to HERE.

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Last Updated: July 22, 2003
Document Number: 03072215_e

Q.

A commnad option sometimes cannnot be specified. Why?

A.

In NC77, command options are discriminated between uppercase and lowercase letters. When specifying a command option, check to see that the case of the option is correct.

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Last Updated: May 20, 2003
Document Number: 03042101_e

Q.

I executed "stk77 -s symbol-file-name" specifying option -o which outputs the stack size and function call relationship to the calculation display file (extension .siz), but that file name was not generated with "symbol-file-name.siz".

A.

When option -o is specified in NC77 for the "stk77 -s symbol-file-name", the .siz file is created according to the following rules.

[NC77 V.3.20 Release 3 or earlier versions]

(1) Find "# SOURCE" line in the symbol file.

(2) Create the .siz file with the file name of the file recorded in the first "# SOURCE" whose extension has been replaced with .siz.

[NC77 V.3.20 Release 4 or later]

(1) Find "# SECTION INFORMATION" line in the symbol file.

(2) Count from the line after "# SECTION INFORMATION" and generate the .siz file with the name of the first object file name or library name located whose extension has been replaced with .siz.

Example: File located: sample.r77
.siz file created: sample.siz

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Last Updated: November 19, 2001
Document Number: 01112004_e

Q.

Can I use KANJI(Chinese) characters in C source programs?

A.

Yes, you can. Japanese characters can be used in NC77.
The following character types can be included.

- kanji
- hiragana
- full-size katakana
- half-size katakana

It is necessary to set up the environment variables to use Japanese characters. Please refer to NC77 User's Manual "Description of Japanese Characters" for setting method.

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Last Updated: March 21, 2000
Document Number: 01051288_e

Q.

I can not place the program in the section which I defined. Why not?

A.

Each program has near/far attributes. Therefore, NC30 will add _N/_F indexes to the end of all section names automatically.

However, if a section name with no _N or _F suffix is in the include file which describes section information (sect30.inc for NC30 default file), NC30 will not place your program in the section you defined.

When you register your section in the section include file, you must put either the _N or _F suffix in your section name.

Program example	Section definition Example

`#praga SECTION program under_program`
`near void n_func(void){ /* under_program_N */ }`
`far void f_func(void){ /* under_program_F */ }`
	`.SECTION under_program_N`
	`.SECTION under_program_F`

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Last Updated: March 21, 2000
Document Number: 01051289_e

Q.

Programs which are not defined by "#pragma SECTION program" are always placed in section program_F. Is there any way to change this?

A.

Programs are placed in either program_N or program_F as a default option. You must individually change the section with "#pragma SECTION". But there is no function to define the default name.

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Last Updated: March 21, 2000
Document Number: 01051290_e

Q.

My main program does not seem to be placed in section program_N. How can I place my main program in this section?

A.

The section which has extension [_N] at the end of the word, like section program_N, will hold near-defined functions. Therefore, you need to define all functions and data which you want to place in this section with near declarations.

(NOTE) Since the near-defined functions are accessed by a 16-bit address, they can not be called from other banks.

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Last Updated: March 21, 2000
Document Number: 01051291_e

Q.

Can a binary (HEX) file be divided into multiple files? I want to make individual HEX files for internal and external ROMs.

A.

Only one HEX file can be generated, but you can place program codes separately in internal and external ROMs. (Please refer to FAQ "How can a section be divided into multiple sections?")

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Last Updated: March 21, 2000
Document Number: 01051292_e

Q.

How can a section be divided into multiple sections? Currently my program is sectioned into 001000H to 00F00FH and 010000H to 01EFFFFH. But I want to place my program from 130000H as well.

A.

One continuous section can not be divided into multiple separate sections. But each individual function can be placed in different sections.

For example, special functions can be placed in a particular section and the section can be assigned to 13000h with .org.

[Procedure]

1. Pick up the functions you want to place in address 13000h (external ROM) as a separate file. The file does not need to be a single file.
2. In the top of the file, insert statement "#pragma SECTION program mysection (modified section name)". (You can use any section name.)
   * With this step, the program section is changed to mysection_N and mysection_F.
   * This procedure is applied just for the program section. For the data section, you need to perform the same step separately.
3. Add address data of mysection_N and mysection_F to section.inc.
   * Standard libraries are placed in section program_F. We recommend keeping the default section until you confirm that no data remains in sections program_N and program_F. You can confirm them in the map file.

   [Assumptions]
   - Please refer to the [NC77 Memory Allocation] section in the User's Manual for details concerning naming conventions of pre-defined sections.
   - The near-defined functions are placed in section program_N as the defaultsetting. In the same manner, far-defined functions are placed in section program_F.
   - When statement "#pragma SECTION program mysection" is used, the near-defined function is placed in my section_N and the far_defined function is placed in mysection_F.

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Document Number: 01051293_e

Q.

When compiling with the NC77 V.5.00 (non-optimized), the code size is sometimes larger than in the NC77 V.4.00 and all earlier versions. Why?

A.

Some of the processes which used to be executed by default in the NC77 V.5.00 have now been modified and are executed when the optimization option are specified. Therefore, when the optimization option is not specified, the code size may be larger.

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Document Number: 01051294_e

Q.

When I execute the NC77 on Windows 95 'can't analyze error' is displayed and NC77 stops compiling my program. What's wrong?

A.

This problem may occur when your PC has resident virus checker but can be avoided by terminating the virus checker. Since termination of the virus checker seems to solve the problem, this indicates that the problem is caused by the virus checker itself, not the NC77WA. For more details, please contact the original manufacturer of your software.

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M3T-PD77SIM Simulator Debugger

See Tool News for this product

Last Updated: May 20, 2003

- I created a button in the GUI Input Window and then saved it, but when I restart M3T-PD79SIM (or M3T-PD77SIM, M3T-PD38SIM) I get the following message. (Dec. 20, 2002)

  "ERROR 21001: BUTTON file is illegal"

- I want to setup interval data sampling using the OnTimer function the CB77SIM. Please tell me the LSB for the interval to be set in _win_timer_set. The manual indicates milliseconds (ms). However, based on my tests so far, when I set 1000ms or more, I have no problem, but when I set 10ms as the interval, the actual interval is around 50ms. (Feb. 20, 2002)

- To execute a source compile on the M3T-NC77WA, I treat the enumerator by the generated code modifying option "-fCE" as an unsigned char type, rather than int type. However, when I reference the enumerator type variable with the M3T-PD77SIM (display by moving the mouse curser to the variable), it displays the form in 16 bits instead. Why? (Dec. 20, 2001)

- How should I set Timer A0 for MR7700 when executing a program, which embeds MR7700, on PD77SIM? (Oct. 5, 2001)

- Can I use M3T-PD77SIM to debug an object file generated with IAR's C compiler EW7700 (ICC7700)? (May 20, 2003)*Updated*

- I get an error and I can not use the custom commands when I:

  1. Use the OPEN button in the script window to open a *.scr file which is not in the same directory as PDxx.EXE,
  2. then execute a custom command, in the script window, which exists in the same directory as PDxx.EXE does.

  I realize I can execute custom commands by placing the *.scr file in the same directory as the PDxx.EXE, but in this case having to put both in the same directory is not convenient. (Nov. 19, 1999)

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Last Updated: February 20, 2002
Document Number: 02020511_e

Q.

I want to setup interval data sampling using the OnTimer function the CB77SIM. Please tell me the LSB for the interval to be set in _win_timer_set. The manual indicates milliseconds (ms). However, based on my tests so far, when I set 1000ms or more, I have no problem, but when I set 10ms as the interval, the actual interval is around 50ms.

A.

In Windows 98/95, the shortest interval available when generating timer events is around 55ms. Therefore, if you are using Windows 98/95, even if you set the interval in _win_timer_set to 10ms, the timer events will be generated every 55ms or so.

We think, in Windows 2000, the interval depends on the PC environment (motherboard, etc.).
In addition, when a timer event is generated, the timer message goes to the message queue in the application. The application doesn't necessarily receive the timer message at the specified interval, and Windows operations may cause a delay. When setting data sampling, etc., please keep in mind that the timer event intervals are not accurate.

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Last Updated: December 20, 2001
Document Number: 01120509_e

Q.

To execute a source compile on the M3T-NC77WA, I treat the enumerator by the generated code modifying option "-fCE" as an unsigned char type, rather than int type. However, when I reference the enumerator type variable with the M3T-PD77SIM (display by moving the mouse curser to the variable), it displays the form in 16 bits instead. Why?

A.

The enumerator type variables are treated as 2-byte variables by the M3T-PD77SIM. Even if you specify the enumerator as a 1-byte variable in the compiler, the enumerator type variable will be displayed in 2 bytes. However, you can reference the variable correctly by casting and registering it in the C-watch window, as done in the program below.

```
[Example Program]
---------------------------------
    typedef enum eTag {
      ENUM0=0,
      ENUM1,
      ENUM2,
         ...
    } ENUMTYPE;

    ENUMTYPE enEnum;
---------------------------------

[Example of Registration in C Watch Window]
---------------------------------
(eTag)(unsigned char)enEnum
---------------------------------
```

When registering in the C watch window, make sure you cast with [enumerator tag (shown as "eTag" above)]. Do not cast with the type you declared in typedef.
For more details, please refer to MAEC TOOL NEWS "PD32RSIM, PD308SIM, PD30SIM, PD79SIM, PD77SIM, PD38SIM, PD32000, PD32R, PD308, PD30, PD79, PD77, PD38, PD308M, and PD30M Precautions" issued on August 1, 2001.

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Last Updated: October 5, 2001
Document Number: 01092003_e

Q.

How should I set Timer A0 for MR7700 when executing a program, which embeds MR7700, on PD77SIM?

A.

Follow the I/O script sample program included in PD77SIM: Load the sample program for the MR7700 timer (mr.scr) in the I/O window. Refer to "Introducing I/O Script Sample Programs" (31KB, 12 pages) in the manual for more details.

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Last Updated: May 20, 2003
Document Number: 01050927_e

Q.

Can I use M3T-PD77SIM to debug an object file generated with IAR's C compiler EW7700 (ICC7700)?

A.

Yes. Select the EW7700 (ICC7700) options as specified below, then make an IEEE-695 absolute module file.

In the command line

At Compile	"-r" option
At Assemble	"-r" option
At Link	"-o xxx.695", "-f lnk7700.xcl", "-FIEEE695", "-ylmb"

Using Workbench(EW)
From the menu, select [Project] -> [Options...]. This will open the "Options For Target "xxx" Dialog."

- Select ICC7700 from Category.
  Debug tab: Check "Generate debug information".
- Select A7700 from Category.
  Debug tab: Check "Generate debug information".
- Select XLINK from Category.
  Output tab: Check "Other" in the Format area, select "ieee-695" as the Output format.
  Include tab: In the XCL file name area, specify the XCL file to be used (example: lnk7700.xcl).
  XCL file editing: Add "-ylmb" to the XCL file you are using.

The XCL file name should be specified as the XCL file name you will be using. For more details, refer to the ICC7700 Manual.

Please note that source level debug for assembler sources is not supported in versions previous to M3T-PD77SIM V.3.00 Release 1. If you have an older version, please update to the latest M3T-PD77SIM version.

You can download the latest version of M3T-PD77SIM through our Online Upgrade Site.

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M3T-PD77 Emulator Debugger for PC4701 Emulators

See Tool News for this product

Last Updated: April 5, 2004

- When I am debugging my program, sometimes I can't open Time Measurement Window. How can I measure the interval time? (Apr. 5, 2004) NEW
- I can't start up my debugger with the USB interface even though I have used it successfully before. What's the problem? (Feb. 5, 2004)
- I can't install the USB Driver successfully. What could be the problem? (Feb. 5, 2004)
- How do you set a breakpoint in the external ROM area code? (Jan. 7, 2003)
- I just upgraded my PC operating system to Windows 2000 and the emulator debugger I am using won't work anymore. I am using the Parallel Interface Board (PCA4202G02) to connect the PC and emulator. What's the problem? (Dec. 20, 2002)
- I want to setup interval data sampling using the OnTimer function the CB77. Please tell me the LSB for the interval to be set in _win_timer_set. The manual indicates milliseconds (ms). However, based on my tests so far, when I set 1000ms or more, I have no problem, but when I set 10ms as the interval, the actual interval is around 50ms. (Feb. 20, 2002)
- To execute a source compile on the M3T-NC77WA, I treat the enumeration constant of the generated code modification option "-fCE" as an unsigned char type, rather than int type. However, when I reference the enumeration type variable with the M3T-PD77 (display by moving the mouse curser to the variable), it displays the form in 16 bits instead. Why? (Dec. 20, 2001)
- Can PCA4202G02, the dedicated parallel interface board for emulator systems PC4701 and PC4816B, be used with Windows 2000/NT 4.0? (Nov. 5, 2001)
- When I start up PD77, I get the following error message. What is causing this error? (Mar. 20, 2001)

  "ERROR 11465: Target MCU is unable to reset.\nPlease reset target systems."
- Can I debug an object file, which I created with IAR Systems' C compiler (ICC7700), with PD77? (Feb. 5, 2001)
- Is there anything I need to know about using PD77 with a LAN connection? (Sep. 20, 2000)
- I plan on adding a LAN card to my notebook PC for connection with the Renesas emulator. Does Renesas recommend certain LAN cards or have operation tests for specific LAN cards? (Sep. 20, 2000)
- Is a hub necessary even when I use the emulator in a stand-alone environment? I want to connect my PC and PC4701HS directly. (Sep. 20, 2000)
- Can I use a LAN connection with my notebook PC? If so, is there any special setup I need to perform? (Sep. 20, 2000)
- When I use the execution of the specified address as measurement trigger in the interval time measurement function, I need to use the CPU address-read action for the actual trigger event. At this time, the debugger will detect this action at the CPU address pre-fetch stage (before the CPU executes this instruction). Will the measurement be taken correctly? (Aug. 25, 2000)
- Can I use PD77 with Gaio Technology's C compiler? (Aug. 25, 2000)
- Does the PDxx operation affect the emulator MCU execution speed or conditions? I would like to know how the PC4701 reads out data from the emulation MCU in real-time. (Jul. 5, 2000)
- How can I find out the type and license ID of the emulator debuggers included in the CD-ROM that comes bundled with

Emulators PC4701U/PC4701M? (July 22, 2003)

- I am using the PDxx emulator debugger on my notebook PC. And I use the serial interface for the emulator connection. Sometimes, while I am using the RAM monitor window, my target program hangs up. Does the PDxx debugger have a compatibility problem with my PC? Do I have to have a special setting for my OS version? (Jul. 5, 2000)

- 1. When using M3T-PDxx (M3T-PD308, M3T-PD30, M3T-PD79, M3T-PD77, M3T-PD38) with PC4701U/PC4701M, the emulator serial number must be input during the M3T-PDxx installation. But what happens when I install using a PC4701U/PC4701M with a different serial number?
  2. Can I use the M3T-PDxx bundled in the "Debug Tools" (formerly called "PDxx service pack") for the PC4701U/PC4701M with any other PC4701 emulator besides PC4701U/PC4701M? (July 22, 2003)

- I get an error and I can not use the custom commands when I:
  1. Use the OPEN button in the script window to open a *.scr file which is not in the same directory as PDxx.EXE,
  2. then execute a custom command, in the script window, which exists in the same directory as PDxx.EXE does.

  I realize I can execute custom commands by placing the *.scr file in the same directory as the PDxx.EXE, but in this case having to put both in the same directory is not convenient. (Nov. 19, 1999)

- I want to refer to the data at address 0x46x and 0x500 from the RAM monitor window, but because the real-time RAM monitor function specifies that the memory must continually be 1K bytes, I can not refer to both at the same time. Is there any way to separate the RAM monitor area into sections? (Nov. 19, 1999)

- I want to use the zone time measurement on PD77, but the [Fetch] button in [set_event] of the time measurement window is not active (the button is displayed in gray). The only active options are [address], [bit symbol], and [trigger]. Under what conditions is [Fetch] not available? (Nov. 19, 1999)

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Last Updated: January 7, 2003
Document Number: 02122002_e

Q.

How do you set a breakpoint in the external ROM area code?

A.

A software breakpoint can be used when the external ROM area is assigned to the emulation memory, as explained below.

- When starting up the M3T-PD77, select the Emulation Memory tab in the Emem dialog.
- Using the Emem Address list, specify the bank address that includes the corresponding area.
- After M3T-PD77 begins operating, download the code.

* For more details on how to set a breakpoint, refer to following: M3T-PD77 Help menu a [Emem Dialog] a [EMEM Tab].

[Supplement]
You can also set a hardware breakpoint (detect a memory read access of the code's address) in the external ROM area code. However, this will cause an event to occur when a prefetch is detected as well.

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Last Updated: February 20, 2002
Document Number: 02020512_e

Q.

I want to setup interval data sampling using the OnTimer function the CB77. Please tell me the LSB for the interval to be set in _win_timer_set. The manual indicates milliseconds (ms). However, based on my tests so far, when I set 1000ms or more, I have no problem, but when I set 10ms as the interval, the actual interval is around 50ms.

A.

In Windows 98/95, the shortest interval available when generating timer events is around 55ms. Therefore, if you are using Windows 98/95, even if you set the interval in _win_timer_set to 10ms, the timer events will be generated every 55ms or so.

We think, in Windows 2000, the interval depends on the PC environment (motherboard, etc.).
In addition, when a timer event is generated, the timer message goes to the message queue in the application. The application doesn't necessarily receive the timer message at the specified interval, and Windows operations may cause a delay. When setting data sampling, etc., please keep in mind that the timer event intervals are not accurate.

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Last Updated: December 20, 2001
Document Number: 01120508_e

Q.

To execute a source compile on the M3T-NC77WA, I treat the enumerator by the generated code modifying option "-fCE" as an unsigned char type, rather than int type. However, when I reference the enumerator type variable with the M3T-PD77 (display by moving the mouse curser to the variable), it displays the form in 16 bits instead. Why?

A.

The enumerator type variables are treated as 2-byte variables by the M3T-PD77. Even if you specify the enumerator as a 1-byte variable in the compiler, the enumerator type variable will be displayed in 2 bytes. However, you can reference the variable correctly by casting and registering it in the C-watch window, as done in the program below.

```
[Example Program]
---------------------------------
    typedef enum eTag {
      ENUM0=0,
      ENUM1,
      ENUM2,
         ...
    } ENUMTYPE;

    ENUMTYPE enEnum;
---------------------------------

[Example of Registration in C Watch Window]
---------------------------------
(eTag)(unsigned char)enEnum
---------------------------------
```

When registering in the C watch window, make sure you cast with [enumerator tag (shown as "eTag" above)]. Do not cast with the type you declared in typedef.
For more details, please refer to MAEC TOOL NEWS "PD32RSIM, PD308SIM, PD30SIM, PD79SIM, PD77SIM, PD38SIM, PD32000, PD32R, PD308, PD30, PD79, PD77, PD38, PD308M, and PD30M Precautions" issued on August 1, 2001.

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Last Updated: March 20, 2001
Document Number: 01050935_e

Q.

When I start up PD77, I get the following error message. What is causing this error?

"ERROR 11465: Target MCU is unable to reset.\nPlease reset target systems."

A.

The cause of "ERROR 11465" is most likely one of the following:

1. Faulty contact between emulator and pod or pod and target board.
2. Problems with the reset circuit on the target board (for example, faulty output of reset signal).

When this error occurs, down load the firmware after disconnecting the target board from the pod, then confirm proper operations of PD77.

1. If PD77 starts up normally, check the reset circuit on the target board.
2. If PD77 does not start up normally, the following two points may be the cause:
   - Incorrect pod settings
   - Faulty emulator or pod

Also check for faulty contacts between the emulator, pod, and target board.

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Last Updated: February 5, 2001
Document Number: 01050936_e

Q.

Can I debug an object file, which I created with IAR Systems' C compiler (ICC7700), with PD77?

A.

Yes, PD77 can debug a program created on ICC7700. However, PD77 does not support source level debugging for the assembler source. When using IAR Systems' Assembler A7700, make sure you do not specify the "-r" option (for outputting debug information) on the A7700.

When using ICC7700, you will need to specify the following options and create an IEEE-695 absolute file.

At Compile:	"-r"option
At Link:	"-o xxx.695", "-f lnk7700.xcl", "-FIEEE695", "-ylmb"

For the XCL file name, please specify the name of the XCL file you intend to use. Refer to the ICC7700 Manual for more details.

This problem has been corrected in PD77 V.3.00 Release 1 and all the later versions. Please download the latest version from our Online Upgrade Site and upgrade your PD77.

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Last Updated: September 20, 2000
Document Number: 01050937_e

Q.

Is there anything I need to know about using PD77 with a LAN connection?

A.

Please be aware of the following points:

1. Before connecting PD77 with the LAN, make sure you set the emulator IP address and download the firmware using the serial connection.

2. When connecting the LAN on Windows 98, you will need to setup the following registry.
   [Registry Setup for Windows 98]

   Location: "HKEY_LOCAL_MACHINE\System\CurrentControlSet\Services\VXD\MSTCP"
   Entry: "SackOpts"
   Value: "0"

   A utility program for setting up this registry is bundled with PD77 V.2.10 Release 1 or later. For details concerning the utility, please refer to Release Note "Note about LAN communication with emulators on Windows 98" or MESC TOOL NEWS "Information on Windows 98 Hosted Mitsubishi Development Support Tools No. 2" issued on December 1, 1998.

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Last Updated: August 25, 2000
Document Number: 01050938_e

Q.

When I use the execution of the specified address as measurement trigger in the interval time measurement function, I need to use the CPU address-read action for the actual trigger event. At this time, the debugger will detect this action at the CPU address pre-fetch stage (before the CPU executes this instruction). Will the measurement be taken correctly?

A.

Yes, if an address that comes within 3 bytes after a branch instruction is set as the measurement event, the measurement event may be incorrectly detected. In the same manner, if an interrupt occurs right after the specified address, an incorrect measurement event may be detected. Two main examples are provided below for reference.

Example 1)
As shown in the description below, the start address of funcB may be pre-fetched when an instruction is executed near the last address of the adjacent funcA. If the funcB execution time is set for the conditions of the interval time measurement, the measurement of funcB interval time may start with the funcA pre-fetch.

```
void funcA()
{
   :
}
void funcB()
{
   :
}
```

Example 2)
As shown in the description below, when the distance between funcD(); and a=0; is 3 bytes or less, the address for a=0; may be pre-fetched before funcD() is called. When a read for the a=0; address is set as the measurement start event, you may get a double measurement: the pre-fetch before funcD() is called and the pre-fetch before the actual instruction execution after returning from funcD().

```
void funcC()
{
   :
   funcD();
   :     <-- Less than 3 bytes
   a=0;  <-- Set a read of this address as the measurement event
   :
}
```

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Last Updated: August 25, 2000
Document Number: 01050939_e

Q.

Can I use PD77 with Gaio Technology's C compiler?

A.

No, PD77 does not support Gaio Technology's C compiler.
PD77 supports the following compilers:

Renesas - NC77 C compiler
IAR Systems - EW7700 (ICC7700) C compiler

For more information concerning partners support, please refer to the Tool Homepage.

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Last Updated: November 19, 1999
Document Number: 01050940_e

Q.

I want to use the zone time measurement on PD77, but the [Fetch] button in [set_event] of the time measurement window is not active (the button is displayed in gray). The only active options are [address], [bit symbol], and [trigger]. Under what conditions is [Fetch] not available?

A.

[Fetch] is not available in the PD77 specifications. However, a memory read cycle occurs for the instruction fetched during a pre-fetch. Please use this memory read as a substitute method for the zone time measurement. The necessary steps are listed below.

- Select [address] and the following settings:

  Address column

  Type: Other
  Address: input the corresponding address
  Operator: ==

  Data Column

  Access: Read
  Compare: Not Specify

These same settings should be substituted for the hardware breakpoint settings and tracepoint settings.

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M377xxT-RPD-E Emulation Pod for PC4701 Emulators

See Tool News for this product

Last Updated: August 20, 2002

- Please supply the connection diagram for the through-holes of Flexible Cable FLX100 of the emulation pod. (Aug. 20, 2002)

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77xx Programming Adapters

Last Updated: January 9, 2004

- When using the 7700 Series Programming Adapter PCA4709 to program M37703 MCU, should the JP1 switch be set to the M37701 side or the M37705 side? (Jan. 9, 2004) NEW
- For some reason, I can not program my Renesas MCU. What are the possible problems? (Dec. 20, 1999)
- What are the differences between the [GOX] extensions of PCA4708, PCA4773, and PCA4774. (Jul. 5, 2000)

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Last Updated: January 9, 2004
Document Number: 03120506_e

Q.

When using the 7700 Series Programming Adapter PCA4709 to program M37703 MCU, should the JP1 switch be set to the M37701 side or the M37705 side?

A.

Please set the switch to the M37701 side.
* M37703 is a successor to M37701.

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Last Updated: July 5, 2000
Document Number: 01051019_e

Q.

What are the differences between the [GOX] extensions of PCA4708, PCA4773, and PCA4774.

A.

The differences based on PCA4774, as an example, are as follows:

PCA4774G02: PCA4774 with M5M27C101 device mode added
PCA4774G03: PCA4774G02 with M5M28F101 device mode added
PCA4774G04: PCA4774G03 with ROM capacity increased to 128KB
PCA4774G05: Form factor variation of PCA4774G04
(This adapter was revised from the vertical insertion type to the horizontal insertion type.)

Note 1: We sell only the newest PCA4708G05, PCA4773G05, and PCA4774G05.
Note 2: The above explanation can be applied in the same manner to PCA4708 and PCA4773.

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M377xxT-PAC 16-bit Simple Tools [Discontinued Product]

See Tool News for this product

Last Updated: October 5, 2000

- There is no source display in my 16-bit Simple Tools emulator debugger PDB77M.
- The symbol information is not displayed in my 16-bit Simple Tools emulator debugger PDB77M.
- I damaged my MXXXXXT(L)-SBI emulator. Can I send it to Renesas for repairs?
- Can I use M37702T-PAC in combination with PDB77M V.2.00 Release 1?
- Does Renesas have future plans to upgrade the PDB77M included in M37702T-PAC to V.2.00 Release 1?
- What are the differences between the compiler NC77 free version, which is included in the 16-bit Simple Tools software, and the NC77 official product?
- Can I download and debug a file created by NC77WA (product-version software tool) with the emulator debugger PDB77M bundled in the 16-bit Simple Tools? (Mar. 3, 2000)
- How compatible is the Simple Tools System to other product-version software tools (SRA74, NC77WA, PD38, PD77, etc.)? (Mar. 3, 2000)
- What is the difference between the Simple Tools' emulator and full-spec emulators such as the PC4701 System?
- Can I specify the emulation memory mapping for M37702T-SBI (external or internal)?
- What are the mapping limitations of the 64KB in M37702T-SBI? Also, are the mapping conditions the same as in full-spec emulators such as PC4701 and PC4816B?
- Can I mount SRAMs, etc., on my target system side and use them as expanded emulation memory?
- Will Simple Tools run on an EWS?
- I purchased M37702T-PAC but the NC77 free version and PDB77M were not included.
- Can I purchase only the emulator (M38000T-SBI/M37702T-SBI/M37735TL-SBI)?
- How can I obtain a pamphlet explaining Simple Tools?
- Is it possible to make masked MCUs with Simple Tools?
- What Simple Tools are currently available? (Oct. 5, 2000)
- What is Simple Tools useful for?

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Document Number: 01050871_e

Q.

There is no source display in my 16-bit Simple Tools emulator debugger PDB77M.

A.

Please confirm the following items:

1. When you use the assembler
   The RASM77M included in Simple Tools does not come with PRE77 which is why there is no source display when you use assembler. Please use RASM77.
2. When you use the compiler
   a) For NC77 start-up settings: make sure -g or -gie options are specified.
   b) For PDB77M: Make sure the correct path is specified in the [Environ] --> [PATH] setting dialog.
   --> These settings are only required when the source file is located in multiple directories.
   Refer to the corresponding User's Manual for detailed descriptions of each option.

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Document Number: 01050872_e

Q.

The symbol information is not displayed in my 16-bit Simple Tools emulator debugger PDB77M.

A.

Please confirm the following items:

1. For the NC77 start-up settings: make sure "-g" or "-gie" options are specified.
2. For RASM77/RASM77M start-up settings: make sure -C and -S options are specified.
3. For LINK77/LINK77 start-up settings: make sure -S option is specified.
   Refer to the corresponding User's Manual for detailed descriptions of each option.

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Document Number: 01050856_e

Q.

I damaged my MXXXXXT(L)-SBI emulator. Can I send it to Renesas for repairs?

A.

We apologize for any convenience but we do not offer a repair service for Simple Tools. If you have received a defective product, we offer a replacement if claimed within 30 days of purchase. In this case, please contact your local Renesas sales office or distributor.

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Document Number: 01050873_e

Q.

Can I use M37702T-PAC in combination with PDB77M V.2.00 Release 1?

A.

Yes, this combination will operate with no problems.

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Document Number: 01050874_e

Q.

Does Renesas have future plans to upgrade the PDB77M included in M37702T-PAC to V.2.00 Release 1?

A.

We have no plan at this time.

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Document Number: 01050875_e

Q.

What are the differences between the compiler NC77 free version, which is included in the 16-bit Simple Tools software, and the NC77 official product?

A.

The NC77 free version is provided only for customer evaluation purposes. It operates on Windows 95 and can only be used for a period of 4 months after installation. Unlike the official product, the user cannot select the optimization options and the stack size calculation utility program is not included. However, object codes created on both the free version and official product are the same. The newest free version, NC77WA, is available in the software download site located in this homepage. Please feel free to use it.

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Last Updated: March 3, 2000
Document Number: 01050876_e

Q.

Can I download and debug a file created by NC77WA (product-version software tool) with the emulator debugger PDB77M bundled in the 16-bit Simple Tools?

A.

Yes, the emulator debuggers (PDB77M) bundled in Simple Tools are compatible with product-version emulator debuggers (PD77). (see note)
Therefore, you can use the Simple Tools emulator debuggers with NC77WA, respectively, for your program development. In the same manner, you can also use full-spec emulators to debug files created with Simple Tools (RASM77M).

(Note)

In order to keep costs to the customer down, we do not offer technical support (technical inquiries, version upgrades, and product warrantee (including maintenance of product version compatibility)) for the software included with Simple Tools. Accordingly, when new upgrades are available for product-version software tools, full compatibility may not maintained. In these cases, you will need to purchase the updated product-version software tools for additional technical information.

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Last Updated: March 3, 2000
Document Number: 01050859_e

Q.

How compatible is the Simple Tools System to other product-version software tools (SRA74, NC77WA, PD38, PD77, etc.)?

A.

The software included in Simple Tools is a subset of product-version software tools, and therefore, has basic compatibility with Simple Tools System products (operations, source file descriptions, etc.) (see note).
Accordingly, any program developed with Simple Tools can be debugged using full spec emulators such as PC4701. Furthermore, basic operations of the emulator debugger bundled with Simple Tools are the same as product-version emulator debuggers PD38 and PD77, allowing smooth transitions from one system to another.

(Note)

In order to keep costs to the customer down, we do not offer technical support (technical inquiries, version upgrades, and product warrantee (including maintenance of product version compatibility)) for the software included with Simple Tools. Accordingly, when new upgrades are available for product-version software tools, full compatibility may not maintained. In these cases, you will need to purchase the updated product-version software tools for additional technical information.

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Document Number: 01050860_e

Q.

What is the difference between the Simple Tools' emulator and full-spec emulators such as the PC4701 System?

A.

The Simple Tools System does not support functions like hardware break or trace, as in full-spec emulators. This is why we can provide a low-cost, all-in-one product which includes all the tools necessary for your development, from assembler to emulator debugger.

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Document Number: 01050877_e

Q.

Can I specify the emulation memory mapping for M37702T-SBI (external or internal)?

A.

It depends on the operation mode. Limitations are as follows:

1. Memory Expansion Mode
   You can determine whether or not to use the emulation memory in addition to the internal ROM area (set by switch), but you cannot select detailed settings.
2. Microprocessor Mode
   You can select the emulation memory in a block of either 16KB, 32KB, 48KB, or 60KB from address FFFF toward address 0000. All areas not selected as emulation memory will serve as external accesses (access to target system).
3. Single Chip Mode
   Emulation memory is located in the 60KB area from address FFFF.

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Document Number: 01050878_e

Q.

What are the mapping limitations of the 64KB in M37702T-SBI? Also, are the mapping conditions the same as in full-spec emulators such as PC4701 and PC4816B?

A.

In M37702T-SBI, the emulation memory cannot be located in the 0 bank. In addition, unlike full-spec emulators, you cannot set detailed mapping specifications.

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Document Number: 01050864_e

Q.

Can I mount SRAMs, etc., on my target system side and use them as expanded emulation memory?

A.

As long as they are readable/writable memory, you can use them as emulation memory.

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Document Number: 01050865_e

Q.

Will Simple Tools run on an EWS?

A.

No, the Simple Tools for 8/16 bit MCUs do not work on an EWS. We also have no plans to do so.

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Document Number: 01050879_e

Q.

I purchased M37702T-PAC but the NC77 free version and PDB77M were not included.

A.

Initial shipments of M37702T-PAC did not include the NC77 free version or PDB77M. You can receive PDB77M free-of-charge by sending us the PDB77M request form included with the M37702T-PAC. Please download the newest NC77WA free version from the download site in this homepage.

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Document Number: 01050866_e

Q.

Can I purchase only the emulator (M38000T-SBI/M37702T-SBI/M37735TL-SBI)?

A.

No, the emulator is not sold separately.

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Document Number: 01050867_e

Q.

How can I obtain a pamphlet explaining Simple Tools?

A.

We do not have a separate catalog or pamphlet for the Simple Tools System. Please refer to the following materials for detailed information concerning Simple Tools.

1. Homepage information
   - Simple Tools Site
   - 740 Family: tool data sheet
   - 7700 Family: tool data sheet
2. Printed material
   - Tool data sheet in Mitsubishi microcomputers Sep. 1998 (CD-ROM)

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Document Number: 01050868_e

Q.

Is it possible to make masked MCUs with Simple Tools?

A.

All the tools needed for development come standard in Simple Tools. However, you can make develop masked MCUs by additionally purchasing a programmer and a programming adapter.

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Last Updated: October 5, 2000
Document Number: 01050869_e

Q.

What Simple Tools are currently available?

A.

- 8-bit Simple Tools System:
  M37531T-PAC : for 7531 Group
  M37471T-PAC : for 7471 Group (Obsolete)
  M38207T-PAC : for 3820 Group
  M38067T-PAC : for 3806 Group (Obsolete)
- 16-bit Simple Tool System:
  M37702T-PAC : for 7702 Group
  M37735T-PAC : for 7733 and 7735 Groups

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Document Number: 01050870_e

Q.

What is Simple Tools useful for?

A.

Simple Tools is perfect for small-scale developments, test developments, MCU evaluations, etc. It is also excellent for user introduction/training of Renesas MCUs.

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M3T-PDB77 Emulator Debugger for PC4816B Emulator [Discontinued Product]

See Tool News for this product

Last Updated: August 25, 2000

- What are the possible causes of error numbers 1110, 1111, 1112, and 1120, which occur during startup of PDB77? (Aug. 25, 2000)
- How can I use the assembler source line debug with PDB77? Currently, the assembler source window does not appear on the screen. (Mar. 21, 2000)

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Last Updated: August 25, 2000
Document Number: 01051020_e

Q.

What are the possible causes of error numbers 1110, 1111, 1112, and 1120, which occur during startup of PDB77?

A.

The most common error in these cases is a bad connection at the evaluation MCU or/and the target board. Please examine each contact point around the evaluation MCU in the pod, as well as every junction on the PC4816 board and the connection to the target board. In particular, the socket for the evaluation MCU is a very fine and fragile piece. Even a small bend in the lead or disposition of the MCU pins may cause a short circuit at the socket junction points.

When one of these errors occurs in a target-less situation, the most probable cause is the evaluation MCU connection. In this case, you will need to carefully remove any oxidation deposits from the MCU pin with the proper cleanser.

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Last Updated: March 21, 2000
Document Number: 01051021_e

Q.

How can I use the assembler source line debug with PDB77? Currently, the assembler source window does not appear on the screen.

A.

PDB77 is developed for C-language and structured assembler-based source debugging. Therefore, it does not support the assembler-source level debugging. In order to make this work, you need to execute PRE77 before executing RASM77.

At this time, if the input file is ".A77", PRE77 generates an error. Please change the file extension to one other than ".A77" (default is ".P77") before executing PRE77. Additionally, set command line option [-C] (source debug information output) for PRE77. Then, set the same option for RASM77 and LINK77:

RASM77 debug options are [-C] and [-S]
LINK77 debug option is [-S]

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PC4816B Emulator for 77xx Series [Discontinued Product]

Last Updated: August 25, 2000

- When I startup the emulator debugger (PDB77, SDB77P) I get one of two messages: "Error 1110: Cannot execute specified command normally (can not execute the pre-process for this command execution)", "Error 1111: Cannot execute specified command normally (cannot release MCU HOLD)". What is the problem? (Aug. 25, 2000)

- Can one emulation pod be shared by both PC4700H and PC4816B? (Apr. 20, 2000)

- Can I use the object code generated by the RASM77 assembler with the PDB77 emulator debugger or the PD77 emulator debugger? (Apr. 20, 2000)

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Last Updated: August 25, 2000
Document Number: 01051022_e

Q.

When I startup the emulator debugger (PDB77, SDB77P) I get one of two messages: "Error 1110: Cannot execute specified command normally (can not execute the pre-process for this command execution)", "Error 1111: Cannot execute specified command normally (cannot release MCU HOLD)." What is the problem?

A.

Please examine the following problems.
(If the target system is not connected at this time, #3 will not occur.)

1. **Emulator System (hardware) Setup Problems**
   --->The board attached to the PC4816B internally may not be correctly inserted into the slot. Check the connection carefully.
   --->The 100-pin half-pitch cable may not be correctly connected between PC4816B and M377XXTX-HPD. Check the connection carefully.

2. **Emulator Debugger (PDB77, SDB77P) Setup Problems**
   --->The MCU information may not be set properly.
   Please confirm the contents of the setting. For details, refer to "M377XXTX-HPD Handling Instructions: MCU Command Description Examples Section".
   --->The mapping may not be setup correctly.
   Please keep the following emulation usage limitations in mind when checking the contents of each setting.
   When using the emulator, the emulator will need part of the MCU memory space as a work area. This work area (1 - 6 as indicated below) must be set for the MCU to be able to perform an access.

   1. 6 bytes of user stack area (the 6 bytes lower than the address indicated by the stack pointer)
   2. DBC vector area (FFF8H to FFF9H)
   3. BRK vector area (FFFAH to FFFBH)
   4. RESET vector area (FFFEH to FFFFH)
   5. Monitor work area in Bank 0 (arbitrary 6 bytes)
      The start address of the monitor work area in Bank 0 can be set to any address by the emulator debugger.
   6. Debug Bank (any one bank)
      The debug bank can be set to any bank by the emulator debugger.

   [Mapping Setup Example]

```
      C000 to FFBF    R/W     EXT
      FFC0 to FFC5    R/W     INT    ; Monitor work area in Bank 0
      FFC6 to FFF7    R/W     EXT
      FFF8 to FFFB    R/W     INT    ; DBC, BRK vector area
      FFFC to FFFD    R/W     EXT
      FFFE to FFFF    R/W     INT    ; RESET vector area
    10000 to FEFFFF   R/W     EXT
   FF0000 to FFFFFF   R/W     INT    ; Debug bank
```

3. **Target System Problems**
   --->The target system supply power may not be within the guaranteed operating range. Check the operating voltage.
   For more details considering guaranteed operating conditions, refer to M377XXTX-HPD Handling Instructions: Specifications Section.
   --->There may be a problem concerning the target system pins. Please verify the following items:
   - - Make sure the RESET, HOLD, and RDY pins are 'H' during the emulator debugger startup (while setting MCU information).
   - - Make sure BYTE pin is set to proper bus width state.
     When using single-chip mode, memory expansion 16-bit bus mode, or microprocessor 16-bit bus mode, the BYTE pin must be 'L'. When using memory expansion 8-bit bus mode or microprocessor 8-bit bus mode, the BYTE pin must be 'H'.

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Last Updated: April 20, 2000
Document Number: 01051023_e

Q.

Can one emulation pod be shared by both PC4700H and PC4816B?

A.

No, it cannot. The emulation pods are different for each emulator.

Emulator	Emulation pod	Emulator debugger
PC4701	M377XXT-RPD-E	PD77
PC4816	M377XXTX-HPD	PDB77

The PDB77 emulator debugger is made specifically for the PC4816 emulator and cannot be used for PC4701, and vice versa. And the PD77 emulator debugger cannot work with the PC4816 emulator.

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Last Updated: April 20, 2000
Document Number: 01051024_e

Q.

Can I use the object code generated by the RASM77 assembler with the PDB77 emulator debugger or the PD77 emulator debugger?

A.

Yes, you can. Both PDB77 and PD77 emulator debuggers support the RASM77 object code. There are no version restrictions (excluding any bug limitations on older versions).

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M377xxTx-HPD(-E) Emulation Pod for PC4816B Emulator [Discontinued Product]

Last Updated: July 5, 2000

- I would like to use the M37702E8BFP MCU under the following conditions. Are the any problems I should be aware of? (Jul. 5, 2000)

  MCU : M37702E8BFP (ROM 60KB/RAM 2KB)
  Operating Conditions : 25MHz/5V
  ICE System : PC4816B + M37702TL-HPD

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Last Updated: July 5, 2000
Document Number: 01051018_e

Q.

I would like to use the M37702E8BFP MCU under the following conditions. Are the any problems I should be aware of?

MCU : M37702E8BFP (ROM 60KB/RAM 2KB)
Operating Conditions : 25MHz/5V
ICE System : PC4816B + M37702TL-HPD

A.

To debug your software for the M37702E8BFP MCU, you must use the screened version of the M37702E8BFP evaluation MCU. Please contact your Renesas representative for more details. Make sure you have the following information ready:

Order Number : MESH-TOOL-H
Specification Details : M37702E8BFP EVA Chip

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FAQs

8-bit 740 Family

August 5, 2004

MM (Jan. 7, 2003)	Maskfile Converter MM
TM (Aug. 5, 2004) UP	Integrated Development Environment (attached to M3T-SRA74)
M3xxxxT-PAC (June 20, 2002)	Simple Tool System Package for 740 Family 3820*/3822/3850,3851/38K0/38K2/7540/7471*/7531*/3806* Group * Discontinued
M3T-SRA74 (July 22, 2003)	Assembler Package (with TM and M3T-PD38SIM)
M3T-PD38SIM (May 20, 2003)	Simulator Debugger (attached to M3T-SRA74)
M3T-PD38 (Apr. 5, 2004) (Originally PDB38)	Emulator Debugger for Windows
PDSDK COM Kit (Nov. 19, 2002)	Debugger Customization kit
M38xxxT2-CPE (Aug. 5, 2004) UP	Compact Emulator
PC4701 (Oct. 20, 2003)	Emulator for M16C, 7700, 740 Families PC4701U (Now!) PC4701M/PC4701HS/PC4701L/PC4700H/PC4700L (Discontinued Products)
M38000TL2-FPD (Aug. 5, 2004) UP	Emulation Pod [containing the FAQs for Emulator MCUs]
Emulator MCUs (Oct. 19, 2001)	
M3xxxxT-RPD(-E) (Jan. 9, 2004)	Emulation Pod
PCAxxxxxx-xxxx (Mar. 5, 2002)	Programming Adapter
Accessories (Nov. 5, 2003)	Accessory Tools
Others (Sep. 5, 2003)	User Registration, License ID, Guarantee and Repair, etc.

Discontinued Products

WDB38N (Nov. 2, 1998)	Emulator Debugger for DOS (Discontinued Product)
PC4600 (Apr. 22, 2002)	Emulator for 740 family (Discontinued Product)

740 Family Index | FAQs Index

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M3xxxxT-PAC 8-bit Simple Tools

See Tool News for this product

Last Updated: June 20, 2002

- Is it possible to debug a program including the structure or macro commands of the M3T-SRA74 relocatable assembler with the PDB38M emulator debugger? (Apr. 22, 2002)
- My M38000T-SBI won't perform the self-check...
- I damaged my MXXXXXT(L)-SBI emulator. Can I send it to Renesas for repairs?
- Can I download and debug a file created by SRA74 (product-version software tool) with the emulator debugger PDB38M bundled in the 8-bit Simple Tools? (Mar. 3, 2000)
- I want to save my previously used debug environment (window appearance) of PDB38M Version 1.00 Release 1 (8-bit Simple Tools emulator debugger).
- How compatible is the Simple Tools System to other product-version software tools (SRA74, NC77WA, PD38, PD77, etc.)? (Mar. 3, 2000)
- What is the difference between the Simple Tools' emulator and full-spec emulators such as the PC4701 System?
- Can I use the 740 Family Simple Tool System Package in combination with other emulator MCUs? (Jun. 20, 2002)*Updated!*
- Will M38000T-SBI run with a target system powered by 3V?
- Can I use the M37471T-PAC for debugging M37470?
- Can I mount SRAMs, etc., on my target system side and use them as expanded emulation memory?
- Will Simple Tools run on an EWS?
- Can I purchase only the emulator (M38000T-SBI/M37702T-SBI/M37735TL-SBI)?
- How can I obtain a pamphlet explaining Simple Tools?
- Is it possible to make masked MCUs with Simple Tools?
- What Simple Tools are currently available? (Oct. 5, 2000)
- What is Simple Tools useful for?

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Last Updated: April 22, 2002
Document Number: 02040502_e

Q.

Is it possible to debug a program including the structure and macro commands of the M3T-SRA74 relocatable assembler with the PDB38M emulator debugger?

A.

Yes, it is. The PDB38M already supports a source-line debug function for the structure and macro commands of M3T-SRA74.

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Document Number: 01050855_e

Q.

My M38000T-SBI won't perform the self-check...

A.

Please confirm the following items:

1. Confirm the operations with the bundled temporary target board. If all operations are normal, the problem must be somewhere in your target system.
2. Make sure all cables are connected properly.
3. Make sure all ICs are plugged into their sockets in the proper direction.
4. Make sure the power supply is going to both M38000T-SBI and the temporary target board.
   Power supply is necessary for both the temporary target board and your target board.
5. Check the switch settings of the temporary target board

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Last Updated: March 3, 2000
Document Number: 01050857_e

Q.

Can I download and debug a file created by SRA74 (product-version software tool) with the emulator debugger PDB38M bundled in the 8-bit Simple Tools?

A.

Yes, the emulator debuggers (PDB38M) bundled in Simple Tools are compatible with product-version emulator debuggers (PD38). (see note).
Therefore, you can use the Simple Tools emulator debuggers with SRA74, respectively, for your program development. In the same manner, you can also use full-spec emulators to debug files created with Simple Tools (SRA74M).

(Note)

In order to keep costs to the customer down, we do not offer technical support (technical inquiries, version upgrades, and product warrantee (including maintenance of product version compatibility)) for the software included with Simple Tools. Accordingly, when new upgrades are available for product-version software tools, full compatibility may not maintained. In these cases, you will need to purchase the updated product-version software tools for additional technical information.

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Document Number: 01050858_e

Q.

I want to save my previously used debug environment (window appearance) of PDB38M Version 1.00 Release 1 (8-bit Simple Tools emulator debugger).

A.

PDB38M Version 1.00 Release 1 does not have a function to save the debug environment. However, you can save the ASM watch window.

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Last Updated: June 20, 2002
Document Number: 01050861_e

Q.

Can I use the 740 Family Simple Tool System Package in combination with other emulator MCUs?

A.

Each emulator that is included in the 740 Family Simple Tool System Packages (hereafter called Simple Tool Package), M38000T-SBI, is the same one. You can substitute any emulator MCU as long as it is part of a Simple Tool Package product. Make sure you use the temporary target board and the converter for connecting the target applicable to the MCU to be debugged. (Note that the price of the Simple Tool Package may be higher when you buy not only the emulator MCU but also these accessories.)

The valid specification when substituting emulator MCUs will be the based on the specification of the Simple Tool Package that corresponds to the MCU to be debugged. Refer to the Setup Guide of the corresponding Simple Tool Package.

In addition, you will need the definition file for the emulator MCU, which can be downloaded by right-clicking from the list below.

- M37471 Definition File (m37471.i38: 1KB)
- M37478 Definition File (m37478.i38: 1KB)
- M37531 Definition File (m37531.i38: 1KB)
- M37540 Definition File (m37540.i38: 1KB)
- M38000 Definition File (m38000.i38: 1KB)

Important!
Operations using an emulator MCU from a product that is not a Simple Tool Package may not operate properly due to emulator MCU characteristic differences, specification differences, etc. Operations using emulator non-Simple Tool Package MCUs are not guaranteed by Renesas Technology Corp..

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Document Number: 01050862_e

Q.

Will M38000T-SBI run with a target system powered by 3V?

A.

M38000T-SBI emulator, which is included in the 8-bit Simple Tool System, does not support low voltage operation.

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Document Number: 01050863_e

Q.

Can I use the M37471T-PAC for debugging M37470?

A.

Yes, but you will also need to purchase the pitch convertor (PCA4906).

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M3T-SRA74 Assembler Package

See Tool News for this product

Last Updated: July 22, 2003

- How to use multiplication/division subroutines for 1 page stacks (July 22, 2003)*New!*
- Why errors are generated with structured language commands which use operators *, /, or %? (July 22, 2003)*New!*
- How can a command file be used? (July 22, 2003)*New!*
- There are so many files to be linked that the limit to command lines is exceeded. Is there any method to link? (July 22, 2003)*New!*
- I am developing an application with M37280 and I need to know how to assemble and link a program that will access an area larger than 64K bytes. (July 22, 2003)*Updated*

740 Family FAQ Index | FAQ Index

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Last Updated: July 22, 2003
Document Number: 03072225_e

Q.

How to use multiplication/division subroutines for 1 page stacks

A.

This section explains only those parts which differ from setting 0 page stacks. After doing the below processing, use the multiplication/division subroutines as explained on the previous page.

Setting stack page

Set the stack page to 1 page using the library source file sra74.a74 included with SRA74. Rewrite the .SPPAGE symbol in the library source file from 0 to 1.

```
-------------------------------------
   .SPPAGE = 0 ; default page( 0 page )
             v
   .SPPAGE = 1 ; Stack page is set 1 page
-------------------------------------
```

Securing operation work area

Secure the work area used by the multiplication/division subroutines. Secure the 3-byte work area .syswk in the zero page RAM.

```
--------------------------
   .SECTION Z
       :
   .syswk .blkb 3
--------------------------
```

Note!
To access the operation work area with an interrupt processing routine, make sure the data in the work area is retained in a stack, etc.

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Last Updated: July 22, 2003
Document Number: 03072224_e

Q.

Why errors are generated with structured language commands which use operators *, /, or % ?

A.

To use operators *, /, or % in structured language commands of SRA74, it is necessary to call up the subroutines written in the sra74.a74 library source file provided with SRA74.
Here following, it is explained how to program with operators *, /, or %. The name of the program using the structured language commands is struct.a74.

Note!
If the stack area is set to one page, see "How to use multiplication/division subroutines for one page stacks".

1. **Call up the subroutine.**
   Write the following lines into the source file where the multiplication and division operations of the structured language commands are written.

```
--------------------
   .EXT .mult_8
   .EXT .div_8
   .EXT .mod_8
--------------------
```

Label name	Function
.mult_8	Subroutine that performs multiplication (*).
.div_8	Subroutine that performs division (/).
.mod_8	Subroutine that performs modulo operations (%).

2. **Assemble sra74.a74.**
   Assemble sra74.a74 and generate a relocatable file.

   >sra74 sra74

3. **Assemble the source program.**
   Assemble the struct.a74 source program and generate a relocatable file.

   >sra74 struct

4. **Link the relocatable file of the source program and sra74.a74.**
   Link struct.a74 and sra74.a74, and generate a machine language file (struct.hex file).

   >link74 struct sra74,,,-Fstruct

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Last Updated: July 22, 2003
Document Number: 03072223_e

Q.

How can a command file be used?

A.

Specify a command file when executing the software. When specifying this file, add "@" at the beginning of its file name to discriminate it from ordinary other files.

```
Example for specifying a command file of link74:
   >link74 @cmdfile

Description example of a command file:
   ------------------------
     struct,,
     ram1,prog1=f0000,
     -m -s
   ------------------------
```

The command file in this example yields the same result as would be obtained by executing the link74 command line shown below.

```
>link74 struct,,ram1 pog1=f0000 -m -s
```

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Last Updated: July 22, 2003
Document Number: 03072222_e

Q.

There are so many files to be linked that the limit to command lines is exceeded. Is there any method to link?

A.

The contents of command lines can be written into a file with which you can execute link74. This file is called a "command file." For details about a command file, refer to HERE.

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Last Updated: July 22, 2003
Document Number: 01050836_e

Q.

I am developing an application with M37280 and I need to know how to assemble and link a program that will access an area larger than 64K bytes.

A.

You can use the following SRA74 functions to describe a program that will access an area larger than 64K bytes.

- Unary operator BK
- Unary operator BL
- .SECTION E
- -BANK (SRA74, LINK74 command options)
- CV74 (converts symbol files and HEX files to data formats that can be used in the debugger)

* These are M37280-dedicated functions and cannot be used for other MCUs.

Detailed descriptions for each of the above-mentioned functions can be found HERE.

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M3T-PD38SIM Simulator Debugger

See Tool News for this product

Last Updated: May 20, 2003

- I created a button in the GUI Input Window and then saved it, but when I restart M3T-PD79SIM (or M3T-PD77SIM, M3T-PD38SIM) I get the following message. (Dec. 20, 2002)

  "ERROR 21001: BUTTON file is illegal"

- I want to setup interval data sampling using the OnTimer function the CB38SIM. Please tell me the LSB for the interval to be set in _win_timer_set. The manual indicates milliseconds (ms). However, based on my tests so far, when I set 1000ms or more, I have no problem, but when I set 10ms as the interval, the actual interval is around 50ms. (Feb. 20, 2002)

- I want to debug a new program for the MCU but the M3T-PD38SIM did not come with an appropriate SFR file. Please advise. (Jan. 21, 2002)

- Can I use M3T-PD38SIM to debug an object file generated with IAR's C compiler EW740 (ICC740)? (May 20, 2003)*Updated*

- I created a simulated interrupt using the sample file "timer1.scr", which was included with PD38SIM, but the number of cycles generated by the interrupt is not the same as what I specified. Why not? (Aug. 25, 2000)

- I get an error and I can not use the custom commands when I:

  1. Use the OPEN button in the script window to open a *.scr file which is not in the same directory as PDxx.EXE,
  2. then execute a custom command, in the script window, which exists in the same directory as PDxx.EXE does.

  I realize I can execute custom commands by placing the *.scr file in the same directory as the PDxx.EXE, but in this case having to put both in the same directory is not convenient. (Nov. 19, 1999)

740 Family FAQ Index | FAQ Index

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Last Updated: February 20, 2002
Document Number: 02020513_e

Q.

I want to setup interval data sampling using the OnTimer function the CB38SIM. Please tell me the LSB for the interval to be set in _win_timer_set. The manual indicates milliseconds (ms). However, based on my tests so far, when I set 1000ms or more, I have no problem, but when I set 10ms as the interval, the actual interval is around 50ms.

A.

In Windows 98/95, the shortest interval available when generating timer events is around 55ms. Therefore, if you are using Windows 98/95, even if you set the interval in _win_timer_set to 10ms, the timer events will be generated every 55ms or so.

We think, in Windows 2000, the interval depends on the PC environment (motherboard, etc.).
In addition, when a timer event is generated, the timer message goes to the message queue in the application. The application doesn't necessarily receive the timer message at the specified interval, and Windows operations may cause a delay. When setting data sampling, etc., please keep in mind that the timer event intervals are not accurate.

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Last Updated: January 21, 2002
Document Number: 01122001_e

Q.

I want to debug a new program for the MCU but the M3T-PD38SIM did not come with an appropriate SFR file. Please advise.

A.

If the M3T-PD38SIM does not include an appropriate SFR file, please create an original one. For more details, refer to Release Note No. "7.1 Method of making SFR file".

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Last Updated: May 20, 2003
Document Number: 01050911_e

Q.

Can I use M3T-PD38SIM to debug an object file generated with IAR's C compiler EW740 (ICC740)?

A.

Yes. Select the EW740 (ICC740) options as specified below, then make an IEEE-695 absolute module file.

1. **In the command line**

At Compile	"-r" option
At Assemble	"-r" option
At Link	"-o xxx.695", "-f lnk740.xcl", "-FIEEE695", "-ylmba"

2. **Using Workbench(EW)**
   From the menu, select [Project] -> [Options...]. This will open the "Options For Target "xxx" Dialog."
   - Select ICC740 from Category.
     Debug tab: Check "Generate debug information".
   - Select A740 from Category.
     Debug tab: Check "Generate debug information".
   - Select XLINK from Category.
     Output tab: Check "Other" in the Format area, select "ieee-695" as the Output format.
     Include tab: In the XCL file name area, specify the XCL file to be used (example: lnk740.xcl).
     XCL file editing: Add "-ylmba" to the XCL file you are using.

   The XCL file name should be specified as the XCL file name you will be using. For more details, refer to the ICC740 Manual.

   Please note that source level debug for assembler sources is not supported in versions previous to M3T-PD38SIM V.2.00 Release 1. If you have an older version, please update to the latest M3T-PD38SIM version.

   You can download the latest version of M3T-PD38SIM through our Online Upgrade Site.

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Last Updated: August 25, 2000
Document Number: 01050912_e

Q.

I created a simulated interrupt using the sample file "timer1.scr", which was included with PD38SIM, but the number of cycles generated by the interrupt is not the same as what I specified. Why not?

A.

When making a simulated interrupt with the sample file "timer1.scr", please modify the sections listed below to match the timer (8 division internal macro).

[After modification]

```
waitc (([0x0021]+1) *  ([0x0020]+1) * 8)
```

[Before modification]

```
waitc (([0x0021]+1) * ([0x0020]+1) * 16)
```

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M3T-PD38 Emulator Debugger for Windows

See Tool News for this product

Last Updated: April 5, 2004

- Neither the single-step execution nor the break operation will work in the internal RAM area of the MCU. What's the problem? (Apr. 5, 2004) NEW
- When I am debugging my program, sometimes I can't open Time Measurement Window. How can I measure the interval time? (Apr. 5, 2004) NEW
- I can't start up my debugger with the USB interface even though I have used it successfully before. What's the problem? (Feb. 5, 2004)
- I can't install the USB Driver successfully. What could be the problem? (Feb. 5, 2004)
- I just upgraded my PC operating system to Windows 2000 and the emulator debugger I am using won't work anymore. I am using the Parallel Interface Board (PCA4202G02) to connect the PC and emulator. What's the problem? (Dec. 20, 2002)
- When I start up the emulator debugger M3T-PD38, the "ERROR 16215" is displayed and the emulator will not operate. (Jan. 20, 2003)
- I want to setup interval data sampling using the OnTimer function the CB38. Please tell me the LSB for the interval to be set in _win_timer_set. The manual indicates milliseconds (ms). However, based on my tests so far, when I set 1000ms or more, I have no problem, but when I set 10ms as the interval, the actual interval is around 50ms. (Feb. 20, 2002)
- Can PCA4202G02, the dedicated parallel interface board for emulator systems PC4701 and PC4816B, be used with Windows 2000/NT 4.0? (Nov. 5, 2001)
- With PD38, can I detect when the stack overflows during the program execution? (Mar. 20, 2001)
- Can I use PD38 to debug an object file generated with IAR's C compiler EW740 (ICC740)? (Sep. 20, 2001)
- When using M38000TL2-FPD through the PD38 command, can I select the internal clock? (Oct. 20, 2000)
- Is there anything I need to know about using PD38 with a LAN connection? (Sep. 20, 2000)
- I plan on adding a LAN card to my notebook PC for connection with the Renesas emulator. Does Renesas recommend certain LAN cards or have operation tests for specific LAN cards? (Sep. 20, 2000)
- Is a hub necessary even when I use the emulator in a stand-alone environment? I want to connect my PC and PC4701HS directly. (Sep. 20, 2000)
- Can I use a LAN connection with my notebook PC? If so, is there any special setup I need to perform? (Sep. 20, 2000)
- In trying to debug a program for a new MCU, I found that the corresponding MCU file is not bundled with PD38. What should I do? (Aug. 25, 2000)
- Does the PDxx operation affect the emulator MCU execution speed or conditions? I would like to know how the PC4701 reads out data from the emulation MCU in real-time. (Jul. 5, 2000)
- How can I find out the type and license ID of the emulator debuggers included in the CD-ROM that comes bundled with Emulators PC4701U/PC4701M? (July 22, 2003)

- I am using the PDxx emulator debugger on my notebook PC. And I use the serial interface for the emulator connection. Sometimes, while I am using the RAM monitor window, my target program hangs up. Does the PDxx debugger have a compatibility problem with my PC? Do I have to have a special setting for my OS version? (Jul. 5, 2000)

- What kinds of real-time debugging operations are guaranteed for the PD38 debugger? (Jul. 5, 2000)

- 1. When using M3T-PDxx (M3T-PD308, M3T-PD30, M3T-PD79, M3T-PD77, M3T-PD38) with PC4701U/PC4701M, the emulator serial number must be input during the M3T-PDxx installation. But what happens when I install using a PC4701U/PC4701M with a different serial number?
  2. Can I use the M3T-PDxx bundled in the "Debug Tools" (formerly called "PDxx service pack") for the PC4701U/PC4701M with any other PC4701 emulator besides PC4701U/PC4701M? (July 22, 2003)

- I get an error and I can not use the custom commands when I:
  1. Use the OPEN button in the script window to open a *.scr file which is not in the same directory as PDxx.EXE,
  2. then execute a custom command, in the script window, which exists in the same directory as PDxx.EXE does.

  I realize I can execute custom commands by placing the *.scr file in the same directory as the PDxx.EXE, but in this case having to put both in the same directory is not convenient. (Nov. 19, 1999)

- I want to refer to the data at address 0x46x and 0x500 from the RAM monitor window, but because the real-time RAM monitor function specifies that the memory must continually be 1K bytes, I can not refer to both at the same time. Is there any way to separate the RAM monitor area into sections? (Nov. 19, 1999)

- I am debugging a program for an 8-bit MCU. How many bytes of user stack is used for the PC4701 work area? Please provide the relevant details. (Nov. 19, 1999)

- I got the following error when I tried to download the IEEE-695 file. What is the cause of this error and how can I work around it? (Nov. 19, 1999)

  ERROR 30007: This data (line_no) is not supported.

- When I reference the coverage measurement result in my PD38, it seems to be showing instructions which the MCU never executed. This happens at the instruction after the RTS instruction. This instruction at this address is never executed in the target program. Why does this happen? (Nov. 19, 1999)

- Does PDB38 V.1.00 support LAN connections? (Nov. 19, 1999)

- I am using the M38199MF MCU. This MCU has 2K bytes of on-chip SRAM (40h - 83Fh). But I can not change the contents of the SRAM located at address 440H or later on my debugger. How I can reconfigure my debugger for this MCU? (Nov. 19, 1999)

- I am currently using ICC740, the IAR C compiler. ICC740 allows me to have SFR symbols in the user source program. The SFR symbols are symbols for each SFR register. My problem is that the symbols do not appear on the memory window of my debugger. Is there a way to put the SFR symbols on the memory window? (Nov. 19, 1999)

- Do PD38 and PDB38 work on Windows 95? (Nov. 19, 1999)

- Do both PD38 and PDB38 work with the serial interface? (Nov. 19, 1999)

- Do older versions of PC4700H emulator work with PD38 and PDB38 (older versions of PC4700H emulator: the last digit in the serial number is not "B" or "C")? (Nov. 19, 1999)

- I want to change the source window, such as the display mode, even if my PC does not have enough work memory. Can I do this? (Nov. 19, 1999)

- Does PD38 works on Windows NT? (Nov. 19, 1999)

- Can I upgrade from the WDB38N DOS debugger to the PD38 Windows debugger? (Nov. 19, 1999)

- Can I use PDB38 or PD38 in combination with PC4600? (Nov. 19, 1999)

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Last Updated: April 5, 2004
Document Number: 04030504_e

Q.

Neither the single-step execution nor the break operation will work in the internal RAM area of the MCU. What's the problem?

A.

The single-step execution and the break operation of the user program cannot be used in the RAM area of emulator products (M38000TL2-FPD or M38000T2-CPE) using an emulator MCU.

In order to transfer and execute a program in the RAM area, make sure you execute a debug using both the free-run and trace functions.

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Last Updated: January 20, 2003
Document Number: 02111901_e

Q.

When I start up the emulator debugger M3T-PD38, the "ERROR 16215" is displayed and the emulator will not operate.

A.

ERROR 16215 is generated when the M3T-PD38 start-up or restart (during operations) process did not occur successfully.
Please confirm the following items to ensure proper operations.

1. Are power, GND and clock being supplied to the target system within the range of the MCU specifications?

2. Is the normal voltage level (default = High) being supplied to the RESET and ONW* pins?
   (The emulator will not work if the RESET pin or ONW*pin is fixed to "L".)

3. Is the switch on the emulation pod set properly (RSS/RFS side or RLSS/RLFS side) and is the VCC cable connected properly?

   For RSS/RFS type emulation MCUs:

   Set the emulation pod switch to RSS/RFS and leave the VCC cable open (unconnected)

   For RLSS/RLFS type emulation MCUs:

   Set the emulation pod switch to RLSS/RLFS and connect the VCC cable to the target system.

4. Is the emulation pod RESET cable connected to the target MCU reset input pin?

5. Has the correct MCU file been selected in the M3T-PD38 Init dialog?

6. Are you using an "H" output type RESET IC on the target board as MCU reset circuit?
   * When debugging with M38000TL2-FPD, use either an open-drain type reset IC or an CR reset circuit.
   The recommended pull-up value is about 10k ohms. The MCU can be reset by outputting "L" to the target through the reset clip on the M38000TL2-FPD.
   However, if the reset circuit on the target is an H-output type RESET IC, it cannot be set to "L" and the emulator will not operate properly.

7. Was the emulator self-check executed successfully?
   * The self-check will generate an error if the emulator or emulation pod is malfunctioning or the target is not connected properly. Please check the emulation pod instructions for more details on how to perform the self-check.

The above settings and requirements are provided in detail in the emulation pod instructions.

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Last Updated: February 20, 2002
Document Number: 02020514_e

Q.

I want to setup interval data sampling using the OnTimer function the CB38. Please tell me the LSB for the interval to be set in _win_timer_set. The manual indicates milliseconds (ms). However, based on my tests so far, when I set 1000ms or more, I have no problem, but when I set 10ms as the interval, the actual interval is around 50ms.

A.

In Windows 98/95, the shortest interval available when generating timer events is around 55ms. Therefore, if you are using Windows 98/95, even if you set the interval in _win_timer_set to 10ms, the timer events will be generated every 55ms or so.

We think, in Windows 2000, the interval depends on the PC environment (motherboard, etc.).
In addition, when a timer event is generated, the timer message goes to the message queue in the application. The application doesn't necessarily receive the timer message at the specified interval, and Windows operations may cause a delay. When setting data sampling, etc., please keep in mind that the timer event intervals are not accurate.

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Last Updated: March 20, 2001
Document Number: 01050880_e

Q.

With PD38, can I detect when the stack overflows during the program execution?

A.

Using the following method, you can make a break occur when the stack overflows.

How to detect an overflow before the stack damages the area used as the RAM:

1. Specify a "write protect attribute" in the PD38 protect window for the "end address -1h of the stack area (lowest address in the stack area)".
2. Turn the protect break 'ON' by pushing the 'Mode' button in the protect window, and execute the target program.
3. The target program will stop when a write occurs corresponding to the address specified as "write protect attribute".

Note: In this case, the contents of the memory specified as "write protect attribute" may be damaged due to this operation.

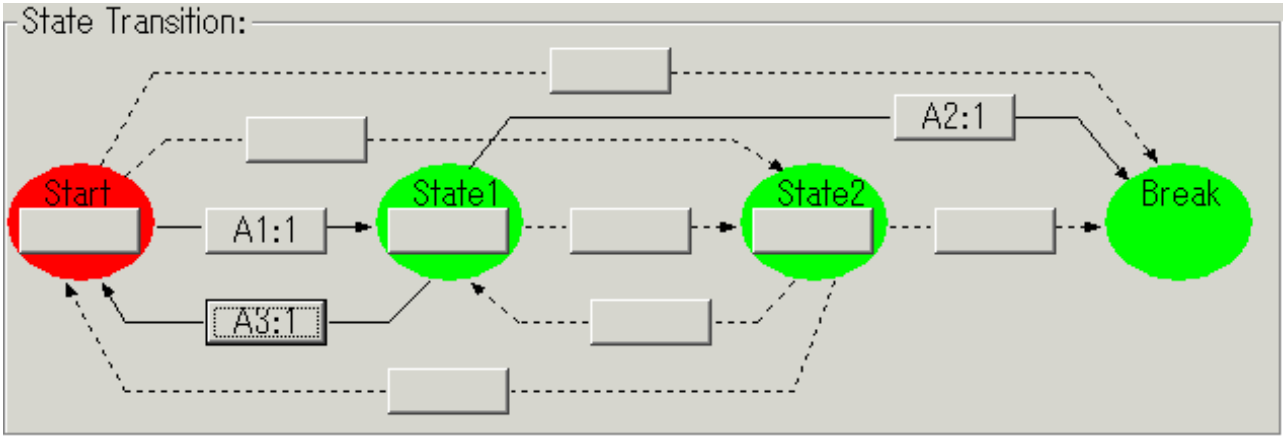
How to detect a stack overflow:

You can stop the target program when a stack overflow occurs by setting a state transition break.

1. Set the break point state
   Use points A1, A2 and A3.
   A1: write to 100h
   A2: read from 100h
   A3: write to 1FFh

2. Set the conditions
   Select the state transition. The state transition configuration will then be displayed.

3. Set the state transition configuration
   Set A1 as the [Start ---> State 1] event
   Set A3 as the [State1 ---> Break] event
   Set A2 as the [State1 ---> Start] event



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Last Updated: September 20, 2001
Document Number: 01050881_e

Q.

Can I use PD38 to debug an object file generated with IAR's C compiler EW740 (ICC740)?

A.

Yes. Select the EW740 (ICC740) options as specified below, then make an IEEE-695 absolute-type file.

- **In the command line**

At Compile	"-r" option
At Assemble	"-r" option
At Link	"-o xxx.695", "-f lnk740.xcl", "-FIEEE695", "-ylmba"

- **Using Workbench (EW)**
  From the menu, select [Project] -> [Options...]. This will open the "Options For Target "xxx" Dialog."
  - Select ICC740 from Category.
    Debug tab: Check "Generate debug information".
  - Select A740 from Category.
    Debug tab: Check "Generate debug information".
  - Select XLINK from Category.
    Output tab: Check "Other" in the Format area, select "ieee-695" as the Output format.
    Include tab: In the XCL file name area, specify the XCL file to be used (example: lnk740.xcl).
    XCL file editing: Add "-ylmba" to the XCL file you are using.

The XCL file name should be specified as the XCL file name you will be using.
For more details, refer to the ICC740 Manual.

Please note that source level debug for assembler sources is not supported in versions previous to PD38 V.4.10 Release 1. If you have an older version, please update to the latest PD38 version. In addition, if you are using PDB38, we also recommend updating to the latest PD38 version.

You can download the latest version of PD38 through our Online Upgrade Site.

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Last Updated: October 20, 2000
Document Number: 01050882_e

Q.

When using M38000TL2-FPD through the PD38 command, can I select the internal clock?

A.

When using M38000TL2-FPD, the clock connected to the emulator MCU is always the valid clock. Even when you select the internal clock (Internal) by PD38, the clock connected to the emulator MCU is used.

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Last Updated: September 20, 2000
Document Number: 01050883_e

Q.

Is there anything I need to know about using PD38 with a LAN connection?

A.

Please be aware of the following points:

1. Before connecting PD38 with the LAN, make sure you set the emulator IP address and download the firmware using the serial connection.

2. When connecting the LAN on Windows 98, you will need to setup the following registry.
   [Registry Setup for Windows 98]

   Location: "HKEY_LOCAL_MACHINE\System\CurrentControlSet\Services\VXD\MSTCP"
   Entry: "SackOpts"
   Value: "0"

   A utility program for setting up this registry is bundled with PD38 V.3.10 Release 1 or later. For details concerning the utility, please refer to Release Note "Note about LAN communication with emulators on Windows 98" or MESC TOOL NEWS "Information on Windows 98 Hosted Mitsubishi Development Support Tools No. 2" issued on December 1, 1998.

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Last Updated: August 25, 2000
Document Number: 01050887_e

Q.

In trying to debug a program for a new MCU, I found that the corresponding MCU file is not bundled with PD38. What should I do?

A.

If the MCU file is not bundled with PD38, you can make your own MCU file.
For instructions on how to create your own MCU file, please refer to the following documents:

PD38 V.3.10 or older: PD38 Release Note
PD38 V.4.00 or newer: PD38 On-line Help

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Last Updated: July 5, 2000
Document Number: 01050891_e

Q.

What kinds of real-time debugging operations are guaranteed for the PD38 debugger?

A.

The real-time operation of the user program is guaranteed based on the following conditions:

1. During the user program execution,
2. the PD38 program always stays in the foreground (no other application program window is in front of PD38), and
3. no other debugging windows are accessed, except the real-time monitor window.

In some conditions, the real-time execution is maintained even with other window accesses. But, if you want to ensure your program's real-time execution, we recommend you to maintain the above conditions.

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Last Updated: November 19, 1999
Document Number: 01050895_e

Q.

I am debugging a program for an 8-bit MCU. How many bytes of user stack is used for the PC4701 work area? Please provide the relevant details.

A.

When debugging an 8-bit MCU program with PD38, the user stack area in emulator PC4701 consists of 3 bytes. These 3 bytes are used for PC (program counter: 2 bytes) and PS (processor status register: 1 byte) to store the target program breaks.

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Last Updated: November 19, 1999
Document Number: 01050896_e

Q.

I got the following error when I tried to download the IEEE-695 file.

ERROR 30007: This data (line_no) is not supported.

What is the cause of this error and how can I work around it?

A.

This is part of the PD38 specification. This error occurs when the source line data in the IEEE-695 file is more than 10000 lines. To work around this, divide the source program into sections so that the number of source lines does not exceed 10000.

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Last Updated: November 19, 1999
Document Number: 01050897_e

Q.

When I reference the coverage measurement result in my PD38, it seems to be showing instructions which the MCU never executed. This happens at the instruction after the RTS instruction. This instruction at this address is never executed in the target program. Why does this happen?

A.

The cause of this problem is in the 740 family specification. Principally, the coverage measurement is a record of the MCU address bus activity during the target program operation. Usually, the value on the address bus is the next instruction location to be executed. However, when the RTS instruction is executed, for example, the RTS instruction is a one- byte instruction. During the RTS instruction execution, the address bus shows the next instruction location right after the RTS instruction. Therefore, this address bus behavior confuses the coverage measurement function by causing it record unnecessary address data.

This kind of address bus behavior happens in the following instructions:

- all one-byte size instructions
- jump instruction (only BRA instruction)
- branch instructions (BCC/BNE, etc. If no branch occurs, this problem does not occur.)

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Last Updated: November 19, 1999
Document Number: 01050898_e

Q.

Does PDB38 V.1.00 support LAN connections?

A.

No. LAN connections are supported by PD38 V.2.00 and later versions. Please upgrade your PDB38 to the most recent version.

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Last Updated: November 19, 1999
Document Number: 01050899_e

Q.

I am using the M38199MF MCU. This MCU has 2K bytes of on-chip SRAM (40h - 83Fh). But I can not change the contents of the SRAM located at address 440H or later on my debugger. How I can reconfigure my debugger for this MCU?

A.

To use M38199MF with your debugger, the emulator MCU must be M38197RFS. However, this emulator MCU has just 1K byte of on-chip SRAM (40h - 43Fh). This is causing your problem. To enable data access for 440h or later RAM address spaces, please configure addresses 440h - 83Fh as internal RAM using the MAP command. By setting the MAP command to Internal, the on-board memory becomes accessible. This MAP command configures the on-board SRAM of the emulation pod to perform as the MCU on-chip RAM, allowing the user to access RAM space 440h - 83Fh.

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Last Updated: November 19, 1999
Document Number: 01050900_e

Q.

I am currently using ICC740, the IAR C compiler. ICC740 allows me to have SFR symbols in the user source program. The SFR symbols are symbols for each SFR register. My problem is that the symbols do not appear on the memory window of my debugger. Is there a way to put the SFR symbols on the memory window?

A.

Because the data for the SFR symbol is not included in the object file which is created by ICC740, the SFR symbol can not be displayed in the memory window.

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Last Updated: November 19, 1999
Document Number: 01050901_e

Q.

Do PD38 and PDB38 work on Windows 95?

A.

Yes.

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Last Updated: November 19, 1999
Document Number: 01050902_e

Q.

Do both PD38 and PDB38 work with the serial interface?

A.

Yes, they work with not only the serial interface but also the parallel interface. PD38 V.2.00 or later versions support the LAN interface.

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Last Updated: November 19, 1999
Document Number: 01050903_e

Q.

Do older versions of PC4700H emulator work with PD38 and PDB38 (older versions of PC4700H emulator: the last digit in the serial number is not "B" or "C")?

A.

No. PD38 and PDB38 only work with newer versions of PC4700H (the last digit of the serial number is either "B" or "C") and PC4701HS. Any versions other than those with serial numbers ending in "B" or "C" need to be upgraded. To upgrade your emulator, please contact us through the e-mail address provided in this homepage.

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Last Updated: November 19, 1999
Document Number: 01050904_e

Q.

I want to change the source window, such as the display mode, even if my PC does not have enough work memory. Can I do this?

A.

Yes, but the available work memory size will effect the number of symbols the debugger can hold.

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Last Updated: November 19, 1999
Document Number: 01050905_e

Q.

Does PD38 works on Windows NT?

A.

Yes, PD38 works on both Windows 95 and Windows NT 4.0. PDB38 does not support the parallel interface so we are not officially supporting this combination.

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Last Updated: November 19, 1999
Document Number: 01050906_e

Q.

Can I upgrade from the WDB38N DOS debugger to the PD38 Windows debugger?

A.

Yes. Please contact your local Renesas sales office or distributor for details. Please have your WDB38N serial number ready when requesting this upgrade.

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Last Updated: November 19, 1999
Document Number: 01050907_e

Q.

Can I use PDB38 or PD38 in combination with PC4600?

A.

No. PC4600 only works with either RTT74 or WDB38, PDB38 and PD38 are dedicated debuggers for emulator PC4701.

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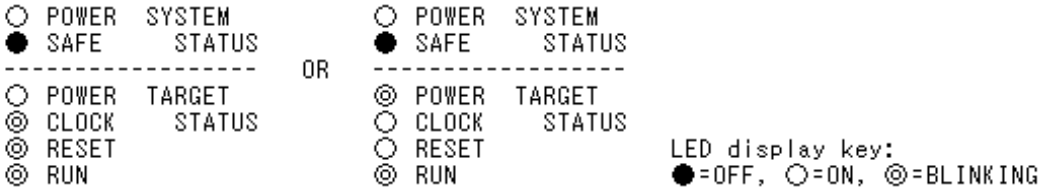
M38xxxT2-CPE Compact Emulator

See Tool News for this product

Last Updated: August 5, 2004

- Does the emulator system support execution of STP and WIT instructions? (Aug. 5, 2004) NEW
- When the D flag is set to 1 (the decimal operation mode enabled), the execution of a program with breakpoints cannot be halted at these breakpoints, and also single-step execution cannot properly be performed. (Apr. 12, 2004)
- When I turn on the power to Compact Emulator M38000T2-CPE, a self-check error occurs, displaying LED as follows, and the emulator doesn't startup. (Apr. 12, 2004)



- Neither the single-step execution nor the break operation will work in the internal RAM area of the MCU. What's the problem? (Apr. 5, 2004)
- When I click on the RESET button or execute the reset command on the M3T-PD38M, or reset the target MCU by the target system, the data in the emulation memory area is written over. What's the problem?(Mar. 22, 2004)
- When I execute a program that reads out the break vector addresses from the user program, the program itself breaks. What's the problem?(Mar. 22, 2004)
- The following errors occur when I try to execute a program written in the area that includes addresses 4000--4FFF or I try to modify or refer to this area in the various windows or by script commands of Emulator Debugger M3T-PD38M. What's the problem?(Mar. 22, 2004)
  - An error arises which says "ERROR 16224: Target MCU is not under control. Please reset target systems."
  - Data in addresses 4000--4FFF are incorrectly displayed.
  - Data in addresses 4000--4FFF are incorrectly set.
- What are the operating conditions when using an emulator MCU with the compact emulator M38000T2-CPE?(Mar. 5, 2004)
- After installing the emulator debugger and connecting the emulator through the USB port, the new device is still not recognized by the system.(Oct. 20, 2003)

740 Family FAQ Index | FAQ Index

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Last Updated: August 5, 2004
Document Number: 04070502_e

Q.

Does the emulator system support execution of STP and WIT instructions?

A.

Support conditions for STP and WIT instructions on the emulator system differ according to the program execution method.

- **Operation during Program Execution**
  When the STP or WIT instruction is executed while the user program is running, the clock stop operation and return to the program from the clock stop state are in the same manner as with the MCU.

- **Operation during Single-Step or Over-Step Execution**
  When the STP or WIT instruction is executed in a single-step or over-step execution, it is executed as an NOP instruction and the clock is not stopped.

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Last Updated: April 12, 2004
Document Number: 04032202_e

Q.

When the D flag is set to 1 (the decimal operation mode enabled), the execution of a program with breakpoints cannot be halted at these breakpoints, and also single-step execution cannot properly be performed.

A.

Please confirm the firmware version number. If the number is lower than Ver.1.02.00, you need to update the firmware.

To confirm the firmware version number:

(1) Launch the M3T-PD38M.
(2) Open the Help menu and select the About command.
(3) In the Version dialog box that appears, check the version of the M38000A1.C0 firmware file.

To update the firmware:
Please replace the M38000A1.C0 firmware file in your product with the problem-fixed one (Ver.1.02.00) as follows:

(1) Download the compressed firmware file "firm.exe" (154KB) from the following RENESAS TOOL NEWS.
    Issue Date: March 16, 2004
    Title: Notes on Using Compact Emulator M38000T2-CPE
    URL: http://tool-support.renesas.com/eng/toolnews/n040316/tn8.htm
(2) Decompress the firm.exe file to obtain the M38000A1.C0 Ver.1.02.00 and Readme_e.txt files.
(3) Follow the steps shown in Readme_e.txt to update the firmware file.

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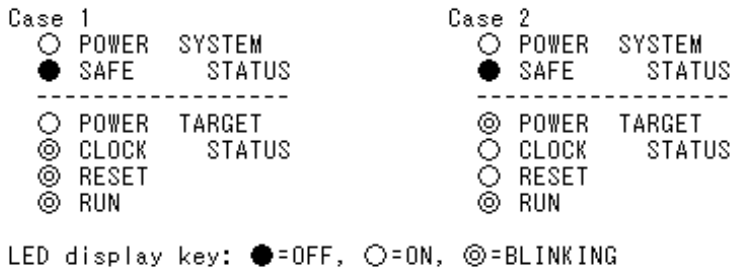
Last Updated: April 12, 2004
Document Number: 04032201_e

Q.

When I turn on the power to Compact Emulator M38000T2-CPE, a self-check error occurs, displaying LED as follows, and the emulator doesn't startup.



A.

Please update the firmware.

To update the firmware:
Please replace the M38000A1.C0 firmware file in your product with the problem-fixed one (Ver.1.02.00) as follows:

(1) Download the compressed firmware file "firm.exe" (154KB) from the following RENESAS TOOL NEWS.
Issue Date: March 16, 2004
Title: Notes on Using Compact Emulator M38000T2-CPE
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(2) Decompress the firm.exe file to obtain the M38000A1.C0 Ver.1.02.00 and Readme_e.txt files.
(3) Follow the steps shown in Readme_e.txt to update the firmware file.

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Last Updated: March 22, 2004
Document Number: 03122204_e

Q.

When I click on the RESET button or execute the reset command on the M3T-PD38M, or reset the target MCU by the target system, the data in the emulation memory area is written over. What's the problem?

A.

Please confirm the firmware version number. If the number is lower than Ver.1.02.00, you need to update the firmware.

To confirm the firmware version number:

(1) Launch the M3T-PD38M.
(2) Open the Help menu and select the About command.
(3) In the Version dialog box that appears, check the version of the M38000A1.C0 firmware file.

To update the firmware:
Please replace the M38000A1.C0 firmware file in your product with the problem-fixed one (Ver.1.02.00) as follows:

(1) Download the compressed firmware file "firm.exe" (154KB) from the following RENESAS TOOL NEWS.
    Issue Date: March 16, 2004
    Title: Notes on Using Compact Emulator M38000T2-CPE
    URL: http://tool-support.renesas.com/eng/toolnews/n040316/tn8.htm
(2) Decompress the firm.exe file to obtain the M38000A1.C0 Ver.1.02.00 and Readme_e.txt files.
(3) Follow the steps shown in Readme_e.txt to update the firmware file.

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Last Updated: March 22, 2004
Document Number: 03122203_e

Q.

When I execute a program that reads out the break vector addresses from the user program, the program itself breaks. What's the problem?

A.

Please confirm the firmware version number. If the number is lower than Ver.1.02.00, you need to update the firmware.

To confirm the firmware version number:

(1) Launch the M3T-PD38M.
(2) Open the Help menu and select the About command.
(3) In the Version dialog box that appears, check the version of the M38000A1.C0 firmware file.

To update the firmware:
Please replace the M38000A1.C0 firmware file in your product with the problem-fixed one (Ver.1.02.00) as follows:

(1) Download the compressed firmware file "firm.exe" (154KB) from the following RENESAS TOOL NEWS.
    Issue Date: March 16, 2004
    Title: Notes on Using Compact Emulator M38000T2-CPE
    URL: http://tool-support.renesas.com/eng/toolnews/n040316/tn8.htm
(2) Decompress the firm.exe file to obtain the M38000A1.C0 Ver.1.02.00 and Readme_e.txt files.
(3) Follow the steps shown in Readme_e.txt to update the firmware file.

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Last Updated: March 22, 2004
Document Number: 03122202_e

Q.

The following errors occur when I try to execute a program written in the area that includes addresses 4000--4FFF or I try to modify or refer to this area in the various windows or by script commands of Emulator Debugger M3T-PD38M. What's the problem?

- An error arises which says "ERROR 16224: Target MCU is not under control. Please reset target systems."
- Data in addresses 4000--4FFF are incorrectly displayed.
- Data in addresses 4000--4FFF are incorrectly set.

A.

Please confirm the firmware version number. If the number is lower than Ver.1.02.00, you need to update the firmware.

To confirm the firmware version number:

(1) Launch the M3T-PD38M.
(2) Open the Help menu and select the About command.
(3) In the Version dialog box that appears, check the version of the M38000A1.C0 firmware file.

To update the firmware:
Please replace the M38000A1.C0 firmware file in your product with the problem-fixed one (Ver.1.02.00) as follows:

(1) Download the compressed firmware file "firm.exe" (154KB) from the following RENESAS TOOL NEWS.
Issue Date: March 16, 2004
Title: Notes on Using Compact Emulator M38000T2-CPE
URL: http://tool-support.renesas.com/eng/toolnews/n040316/tn8.htm
(2) Decompress the firm.exe file to obtain the M38000A1.C0 Ver.1.02.00 and Readme_e.txt files.
(3) Follow the steps shown in Readme_e.txt to update the firmware file.

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Last Updated: March 5, 2004
Document Number: 04022001_e

Q.

What are the operating conditions when using an emulator MCU with the compact emulator M38000T2-CPE?

A.

The operating conditions differ according to the emulator MCU you are using. Please refer to "Supported MCU and emulator MCU" of the datasheet for the M38000T2-CPE.

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M38000TL2-FPD* Emulation Pod

* M38000TL2-FPD is a product which got the declaration of conformity for EMC and safety standards (for Europe and the U.S.). To use M38000TL2-FPD outside Japan, be sure to use the emulator which got the declaration of conformity for EMC and safety standards.

See Tool News for this product

Last Updated: August 5, 2004

Contents

- M38000TL2-FPD UP
- Emulator MCUs

M38000TL2-FPD

- Does the emulator system support execution of STP and WIT instructions? (Aug. 5, 2004) NEW
- Neither the single-step execution nor the break operation will work in the internal RAM area of the MCU. What's the problem? (Apr. 5, 2004)
- How should the emulator and target system be connected for M38C8 debug? (Nov. 5, 2003)
- What are the differences between the two types of 3850 Group emulator MCUs (M38507ARLSS and M38517RSS)? Are there any special usage notes to be aware of? (June 20, 2003)
- When I start up the emulator debugger M3T-PD38, the "ERROR 16215" is displayed and the emulator will not operate. (Jan. 20, 2003)
- When I try to execute the instruction that sets the stack pointer with a step program, while using M38000TL2-FPD and M37531RSS in combination, the emulator begins to malfunction, as shown below. Is there a work-around for this? (Oct. 19, 2001)

```
[Example]
-------------------------------------------------------
  C000  LDX    #3Fh
  C002  TXS             ; Stack pointer setting
  C003  LDM    #C4,3Bh ; CPU mode register setting
  C006  NOP
-------------------------------------------------------
```

- Can the same target system accommodate both the emulator (PC4701 and M38000TL2-FPD) connection and the OTP MCU (M37540E8GP) mounting? (Apr. 5, 2001)
- When using M38000TL2-FPD through the PD38 command, can I select the internal clock? (Oct. 20, 2000)
- The maximum operating frequency of 3803 and 3804 Group MCUs is 16.8MHz, yet the maximum operating frequency of the M38000TL2-FPD is 16.0MHz. Does this pod really operate at 16.8MHz? (Oct. 5, 2000)
- I want to use the 3805/3851 MCU with the 42-pin SSOP package. Is there a way to connect the emulator probe to the 42-pin SSOP footprint on the target board? (Apr. 20, 2000)
- I am using PC4701 with M38000TL2-FPD. When I startup the emulator system, the emulator display immediately after startup is not as indicated in the instructions. In normal operations, the target status RESET LED should go off, but it remains on. I assumed that this indicates an error, but the emulator debugger still operated normally. Why? (Mar. 3, 2000)

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Emulator MCUs

- What is an Emulator MCU? (July 5, 2000)
- The 32LCC-S board, which is a pin converter board for the RFS-type emulator MCU, has a screw-lock attachment. Is it for the M38867RFS emulator MCU? (July 5, 2000)
- What are the differences between the two types of 7451 Group Emulator MCUs: M37451RFS and M37451RSS? (Mar. 3, 2000)
- What are the differences between the two types of 38C3 Group Emulator MCUs: M38C37RFS and M38C37RMFS? (Mar. 21, 2000)
- What are the differences between the two types of 3803/3804 Group Emulator MCUs: M38049RSS and M38049RLSS? Are there any special usage notes? (Feb. 4, 2000)

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Last Updated: August 5, 2004
Document Number: 04070501_e

Q.

Does the emulator system support execution of STP and WIT instructions?

A.

Support conditions for STP and WIT instructions on the emulator system differ according to the program execution method.

- **Operation during Program Execution**
  When the STP or WIT instruction is executed while the user program is running, the clock stop operation and return to the program from the clock stop state are in the same manner as with the MCU.

- **Operation during Single-Step or Over-Step Execution**
  When the STP or WIT instruction is executed in a single-step or over-step execution, the clock is stopped in the same manner as with the MCU. Return to the program differs according to the following return triggers.

  (1) Return due to Reset
  The step operation is terminated (break) at the address set in the reset vector.
  (2) Return due to Interrupt
  After execution of an interrupt routine, the step operation is terminated (break) at the instruction following the STP or WIT instruction. However, if the interrupt routine is an endless loop, a time out error will occur, because the interrupt routine cannot terminate itself.

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Last Updated: November 5, 2003
Document Number: 03092204_e

Q.

How should the emulator and target system be connected for M38C8 debug?

A.

There is no board available for converting the M38C89RLFS (PGA package) as is to the target system. When connecting the emulator and target system, we suggest you use the universal section on the M38C89T-ADF temporary target board. The connection method is as follows:

(1) Connect the pod to M3T-28DP-WS (bundled with emulation pod), then M3T-28DP-WS to M38C89T-ADF.
(2) Mount M38C89RLFS on M38C89T-ADF.
(3) Connect the user target system to the universal section (through-hole for 2.54 pitch connecter) on M38C89T-ADF. Refer to the M38C89T-ADF Users Manual for pin configuration.

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Last Updated: June 20, 2003
Document Number: 03022003_e

Q.

What are the differences between the two types of 3850 Group emulator MCUs (M38507ARLSS and M38517RSS)? Are there any special usage notes to be aware of?

A.

Selection of the emulator MCU depends on the specification of the 3850 Group MCU it is used with, as shown in the table below.

MCU Spec	Applicable Emulator MCU
3850 Group A Spec	M38507ARLSS
3850 Group standard productH spec	M38517RSS

Because the specifications differ for the ports on the tops of M38507ARLSS and M38517RSS, usage of the emulators also differs.

For M38507ARLSS:

1. Set the MCU type switch (SW1) on the emulation pod to the RLSS/RLFS side.
2. Set the VCC (SENSE) cable from the emulation pod to the target VCC.

For M38517RSS:

1. Set the MCU type switch (SW1) on the emulation pod to the RSS/RFS side.
2. Leave the VCC (SENSE) cable from the emulation pod open.

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Last Updated: October 19, 2001
Document Number: 01100502_e

Q.

When I try to execute the instruction that sets the stack pointer with a step program, while using M38000TL2-FPD and M37531RSS in combination, the emulator begins to malfunction, as shown below. Is there a work-around for this?

```
[Example]
-------------------------------------------------------
  C000  LDX    #3Fh
  C002  TXS             ; Stack pointer setting
  C003  LDM    #C4,3Bh ; CPU mode register setting
  C006  NOP
-------------------------------------------------------
```

A.

In the emulator system, the user's stack pointer uses 3 bytes for step execution or user program execution/stop.

In the example program above, when the TXS instruction in line 2 is executed, the stack pointer temporarily indicates the SFR area of M37531 (not the internal RAM area). Therefore, the emulator system cannot access the stack correctly and, as a result, malfunctions.
To avoid this problem, set a break point at the location where the stack pointer setting is completed, and then execute the program from that point. In the above example, the break point should be set at address C006, and then the program should be executed from there. Once you have done this, there should be no problem in executing the step program.
In the actual MCU, this problem will not occur, as the stack will not be used when executing these instructions.

The following restrictions apply to the stack area in the emulator system. Please keep these in mind when debugging your program.

- In this emulator, up to 3 bytes of the user stack is used as a work area.
- If there is not enough user stack area available, areas that cannot be used for stack (SFR areas, RAM or ROM areas which are storing data) will be used as the work area, which may cause problems in the user program or loss of emulator functions. Therefore, always reserve the users stack area with 3 bytes more than the maximum amount used by the user program.
- After reset, the emulator will use the addresses stored in the MCU file as the beginning of the stack area.

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Last Updated: April 5, 2001
Document Number: 01050913_e

Q.

Can the same target system accommodate both the emulator (PC4701 and M38000TL2-FPD) connection and the OTP MCU (M37540E8GP) mounting?

A.

The same target system can accommodate both the emulator connection and the OTP mounting by using the following methods.

1. When connecting an OTP MCU
   Solder NQPACK032SA (*1) to the foot pattern on the target system, and then mount the OTP MCU on NQPACK032SA in the order listed below:
   1. Mount the OTP MCU on NQPACK032SA
   2. Fix the OTP MCU with HQPACK032SA (*1)
2. When connecting the emulator
   Solder NQPACK032SA (*1) to the foot pattern on the target system, and then connect the emulator to NQPACK032SA in this order:
   1. YQPACK032SA(*1)
   2. YQSOCKET032SAF(*1)
   3. TQSOCKET032SAF
   4. M37350T-PTCB(*2)
      M37530T-PTC
   5. Emulator MCU
   6. M38000TL2-FPD

Note *1

These products can be purchased from:

Tokyo Eletech Co., Ltd.	
TEL, FAX	refer to our Partners site
E-Mail	info@tetc.co.jp
URL	http://www.tetc.co.jp/e_tet.htm

Note *2

M37530-PTCB consists of the parts listed below. When using the OTP MCU mounting and the emulator connection together, items #3 and #4 are not necessary.

1. M37530T-PTCB
2. TQSOCKET032SAF
3. TQSOCKET032SAP
4. TQPACK032SA

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Last Updated: October 5, 2000
Document Number: 01050914_e

Q.

The maximum operating frequency of 3803 and 3804 Group MCUs is 16.8MHz, yet the maximum operating frequency of the M38000TL2-FPD is 16.0MHz. Does this pod really operate at 16.8MHz?

A.

This pod works at 16.8MHz (@5V) when the pod is used exclusively with the M38049RLSS emulator MCU. Other than this combination, the maximum frequency of the pod is 16.0MHz (@5V).

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Last Updated: April 20, 2000
Document Number: 01050915_e

Q.

I want to use the 3805/3851 MCU with the 42-pin SSOP package. Is there a way to connect the emulator probe to the 42-pin SSOP footprint on the target board?

A.

You can use the following conversion boards: M3T-42DIP-DMS and M3T-DCT42B-450. The instructions listed below will aid you in the connections necessary from the emulation pod to the target system.

Emulation Pod M38000TL2-FPD
-> Emulator MCU M38517RSS
-> Conversion board M3T-42DIP-DMS
-> Conversion Board M3T-DCT42B-450
-> 42-pin SSOP footprint on target system

Please refer to the following Data sheets for the conversion boards M3T-42DIP-DMS and M3T-DCT42B-450 in the Renesas Tool Website:
(1) Connection Method
(2) M3T-42DIP-DMS Data sheet
(3) M3T-DCT42B-450 Data sheet

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Last Updated: March 3, 2000
Document Number: 01050916_e

Q.

I am using PC4701 with M38000TL2-FPD. When I startup the emulator system, the emulator display immediately after startup is not as indicated in the instructions. In normal operations, the target status RESET LED should go off, but it remains on. I assumed that this indicates an error, but the emulator debugger still operated normally. Why?

A.

With the emulator debugger PD38 V.3.00 Release 1 or later, the RESET LED remains on under normal conditions.

The firmware in PD38 V.3.00 Release 1 and later has been modified so that the MCU goes to reset status immediately after startup. Therefore, RESET LED and others will turn on at the time of normal startup, as described below.

POWER LED: ON during connection to target, OFF when disconnected
CLOCK LED: ON
RESET LED: ON
RUN LED: OFF
HALT LED: OFF

When PD38 is started up under normal conditions, the MCU is released from reset mode and the RESET LED is turned OFF.

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Last Updated: July 5, 2000
Document Number: 01050917_e

Q.

What is an Emulator MCU?

A.

An Emulator MCU is a dedicated MCU developed just for in-circuit emulation and has a probing socket for the emulator main body. An Emulator MCU is connected to the tip of M38000TL2-FPD(on user target side). The bottom pins of the emulator MCU are identical to the respective mask version MCU and have no unnecessary logic around the chip for emulations. Therefore, the pins' electric characteristics are identical to the real chip.

To connect the emulator to the your target system, just mount the chip on your board with either the socket direct mounting or a pin converter board.
Please refer to the Accessory Guide for details concerning the pin conversions.

Please contact your local distributors for detailed information concerning pin assignments and electric characteristics.

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Last Updated: July 5, 2000
Document Number: 01050918_e

Q.

The 32LCC-S board, which is a pin converter board for the RFS-type emulator MCU, has a screw-lock attachment. Is it for the M38867RFS emulator MCU?

A.

Yes, the M38867RFS emulator MCU has a screw-hole on the bottom. The MCU will fit on to the 32LCC-S board.

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Last Updated: March 3, 2000
Document Number: 01050919_e

Q.

What are the differences between the two types of 7451 Group Emulator MCUs: M37451RFS and M37451RSS?

A.

M37451RFS comes in an 80-pin QFP/LCC package and M37451RSS comes in a 64-pin SDIP package.

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Last Updated: March 21, 2000
Document Number: 01050920_e

Q.

What are the differences between the two types of 38C3 Group Emulator MCUs: M38C37RFS and M38C37RMFS?

A.

M38C37RFS :Port P50 pin remains set to the input mode until the direction register is set to the output mode during reset and after reset.
M38C37RMFS:Port P50 pin remains set to the output mode ("L"output) until the direction register is set to the input mode during reset and after reset.

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Last Updated: February 4, 2000
Document Number: 01050921_e

Q.

What are the differences between the two types of 3803/3804 Group Emulator MCUs: M38049RSS and M38049RLSS? Are there any special usage notes?

A.

Although their ports on the top of the MCU for the emulator have different specification between M38049RSS and M38049RLSS, they have the same specifications as MCUs. Please note that M38049RSS has been discontinued and M38049RLSS is the replacement MCU.

Please take note of the following differences when using M38049RSS or M38049RLSS on your emulator.

<M38049RSS>

1. Set the MCU type switch (SW1) on the emulation pod to RSS/RFS.
2. Leave the VCC (SENSE) cable coming from the emulation pod open.

<M38049RLSS>

1. Set the MCU type switch (SW1) on the emulation pod to RLSS/RLFS.
2. Connect the VCC (SENSE) cable coming from the emulation pod to the target VCC.

Example connection using M38049RLSS chip
Since the M38049RLSS emulation chip is housed in a 64-pin SDIP package, you can connect the chip to the target board directly or with a pin converter board. The 3803 Group MCU has 3 package variations and there are 3 options for connecting the chip to the board foot pattern, as follows: **1. Package Type: 64P4B (1.778mm pitch, 64-pin SDIP)** (1) M38000TL2-FPD -> 28DP-WS (or 28DP-WT) -> M38049RLSS -> 64-pin SDIP socket on the board. **2. Package Type: 64P6N-A (0.8mm pitch, 64-pin QFP)** (1) M38000TL2-FPD -> 28DP-WS (or 28DP-WT) -> M38049RLSS -> M38007T-PRB -> 64-pin LCC socket on the board. (2) M38000TL2-FPD -> 28DP-WS (or 28DP-WT) -> M38049RLSS -> 64DIP-DMS -> Dummy 64 -> 64-pin LCC foot pattern on the board **3. Package Type: 64P6Q-A (0.5mm pitch, 64-pin LQFP)** (1) M38000TL2-FPD -> 28DP-WS (or 28DP-WT) -> M38049RLSS -> M38007T-PRB -> 64LCC-QSD -> 64-pin LQFP foot pattern on the board

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M3xxxxT-RPD(-E) Emulation Pod for PC4701 Emulators

See Tool News for this product

Last Updated: January 9, 2004

- How can I access an extended memory area from M3T-PD38 using the MCU's EDMA function? (Jan. 9, 2004) NEW
- Is it possible to use M37640T-RPD-E with a bus-powered USB target system (supplying power via the USB cable)? (Sep. 20, 2000)

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Last Updated: January 9, 2004
Document Number: 03120507_e

Q.

How can I access an extended memory area from M3T-PD38 using the MCU's EDMA function (*)?

* There are M37640T-RPD-E, M37641T-RPD-E and M37641T2-RPD-E for the MCU having EDMA function.

A.

The following are specific rules for accessing the extended memory area.

- When using the emulation memory as the extended memory area:
  Set MAP 10000, 1FFFF, INT in M3T-PD38.
  However, the emulation memory is permanently assigned addresses 10000 to 1FFFF. Therefore, this does not support memory assignments in which multiple banks can use the same port.

- When accessing the memory in the User target:
  Set MAP 10000, 1FFFF, EXT in M3T-PD38.
  When accessing the extended memory area in the M3T-PD38 DUMP or other window, please use the following procedure.

  (1) Output the bank value of the bank switching port you want to access.
  (2) Access address 1XXXX in the DUMP or other window.

  The above procedure executes the access to bank address XXXX.

  Normally, the bank switching port is modified in the program. However, it is necessary to output the bank to the port before accessing data in the DUMP or other window, as described in (1) above.

  * The EMDA enable bit is automatically set to "enabled" when address 10000 or higher is accessed.

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Last Updated: September 20, 2000
Document Number: 01050835_e

Q.

Is it possible to use M37640T-RPD-E with a bus-powered USB target system (supplying power via the USB cable)?

A.

M37640T-RPD-E (hereon referred to as the emulation pod) monitors the power supply voltage supplied to the target, generates the same voltage in the emulation pod itself and supplies this power to the MCU. The emulation pod uses power from the target only for this monitoring function. The dissipation current supplied from the target is less than a few mA.

If the total of the dissipation current of the target and the emulation pod in the above explanation is less than the power of the cable, then it is possible to use the emulation pod on that system. However, if the power supplied from the bus-powered system is unstable (unstable voltage etc.), we can't guarantee the proper operation of the emulator. In this case, we recommend you use an external power supply.

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740 Programming Adapters

See Tool News for this product

Last Updated: March 5, 2002

- What is the guaranteed number of writes for the programming adapter? (Mar. 5, 2002)*New!*
- What is the difference between PCA7435GP/PCA7435GPG02 (discontinued products) and PCA7435GPG03? (Jun. 5, 2001)
- I cannot remove the MCU from PCA7435GP (or PCA7435GPG02). (Jun. 5, 2001)
- Can PCA7435GP / PCA7435SP / PCA7435FP be used to program 7540 Group MCUs? (Feb. 5, 2001)
- I can't successfully program an MCU which has 32KB or less of MCU internal ROM. As "1M" was not indicated on the MCU, I specified M5M27C256 as the device programming mode. (Apr. 5, 2000)
- For some reason, I can not program my Renesas MCU. What are the possible problems? (Dec. 20, 1999)
- Can the EPROM programming adapter (PCA4738X-XXXA) can be used for reprogramming Renesas Flash MCUs. (Dec. 20, 1999)
- Can I use a gang-programmer in combination with an PROM MCU programming adapter. (Dec. 20, 1999)
- Can I program with a ROM writer other than the programmers recommended by Renesas?
- What is difference between PCAxxxxx-xxA ("A" is added to the end of product name) and PCAxxxxx-xx?

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Last Updated: March 5, 2002
Document Number: 02022003_e

Q.

What is the guaranteed number of writes for the programming adapter?

A.

Based on the assumption that the programming adapter will only be used during product development, we do not have a specified guaranteed number of writes. From past experience, depending on the durability of the IC socket, the IC socket contact or the contact between the programming adapter and the PROM programmer wears down due to abrasion after approximately 5000 usages, causing programming failures.

* Please contact the MCU design department for a technical report concerning the number of writes guaranteed for the target MCU.

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Last Updated: June 5, 2001
Document Number: 01050943_e

Q.

What is the difference between PCA7435GP/PCA7435GPG02 (discontinued products) and PCA7435GPG03?

A.

PCA7435GPG03 uses a new socket compatible to the new MCU package (the package has been changed from 32P6B to 32P6U). When the MCU of the new package (32P6U) is attached with PCA7435GP or PCA7435GPG02, you may not be able to insert or remove the MCU to/from the adapter socket. We offer an adapter replacement service for users who purchase the newly packaged MCU and are already using PCA7435GP/PCA7435GPG02.
For more information, please refer to MAEC TOOL NEWS "Announcement Free Replacement of Programming Adapters PCA7435GPG02, PCA7435GP, and PCA7442FP" issued on May 16, 2001.

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Last Updated: June 5, 2001
Document Number: 01050944_e

Q.

I cannot remove the MCU from PCA7435GP (or PCA7435GPG02).

A.

PCA7435GPG03 uses a new socket compatible to the new MCU package (the package has been changed from 32P6B to 32P6U). When the MCU of the new package (32P6U) is attached with PCA7435GP or PCA7435GPG02, you may not be able to insert or remove the MCU to/from the adapter socket. We offer an adapter replacement service for users who purchase the newly packaged MCU and are already using PCA7435GP/PCA7435GPG02.
For more information, please refer to MAEC TOOL NEWS "Announcement Free Replacement of Programming Adapters PCA7435GPG02, PCA7435GP, and PCA7442FP" issued on May 16, 2001.

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Last Updated: February 5, 2001
Document Number: 01050829_e

Q.

Can PCA7435GP / PCA7435SP / PCA7435FP be used to program 7540 Group MCUs?

A.

No. PCA7435GP / PCA7435SP / PCA7435FP are no longer in production and cannot be used as program adapters for the 753x Group. Please use the following programming adapter for 753x and 7540 group when programming 7450 Group MCUs.

PCA7435GPG02: for 32-pin 0.8mm-pitch LQFP
PCA7435SPG02: for 32 / 42-pin 1.778mm-pitch SDIP
PCA7435FPG02: for 36-pin 0.8mm-pitch SSOP

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Last Updated: April 5, 2000
Document Number: 01050830_e

Q.

I can't successfully program an MCU which has 32KB or less of MCU internal ROM. As "1M" was not indicated on the MCU, I specified M5M27C256 as the device programming mode.

A.

Due to smaller packaging, some MCU which has 32KB or less of MCU internal ROM in the package without "1M" printing need to be specified with M5M27C101 mode to the programming mode. Please refer to the appropriate documentation for the MCU you are using (The most recent programming adapter instructions, Tool News, MCU Users Manuals) and set the programming mode as described. You can download the most recent programming adapter instructions from our Manual Download Site.

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Last Updated: December 20, 1999
Document Number: 01050831_e

Q.

Can the EPROM programming adapter (PCA4738X-XXXA) can be used for reprogramming Renesas Flash MCUs.

A.

No, it can not. Please use flash programming adapter PCA4738XF-XXX.

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Document Number: 01050833_e

Q.

Can I program with a ROM writer other than the programmers recommended by Renesas?

A.

We have no experience with any programmers which are not included on the recommended list. We can only recommend programmers for which we have actual programming results. If you wish to use a something other than those we have recommended, they should work if they pass the normal verification process. (Separate screening, etc. is also necessary.)

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Document Number: 01050834_e

Q.

What is difference between PCAxxxxx-xxA ("A" is added to the end of product name) and PCAxxxxx-xx?

A.

PCAxxxxx-xxA supports the MCU which has ROM capacity of more than 32k bytes.

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WDB38N Emulator Debugger for DOS [Discontinued Product]

Last Updated: November 2, 1998

- Can I use WDB38N with C programs generated by ICC740 C compiler?
- Can I debug M37451 and M37471 with WDB38N?
- Does WDB38N run with emulator PC4600?

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Document Number: 01050849_e

Q.

Can I use WDB38N with C programs generated by ICC740 C compiler?

A.

No, C programs can not be debugged with WDB38N. PD38 emulator debugger for Windows 95 and NT Windows supports C source level debugging of C programs generated by ICC740 C compiler. We recommend you the upgrade to PD38 from WDB38N.

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Document Number: 01050852_e

Q.

Can I debug M37451 and M37471 with WDB38N?

A.

Yes, you can debug M37451 and M37471 with WDB38N V.1.10 or greater version. And the MCU files (M37451.MCU and M37471.MCU) are necessary.

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Document Number: 01050854_e

Q.

Does WDB38N run with emulator PC4600?

A.

No, WDB38N is emulator debugger for PC4701 emulator. The emulator debugger for PC4600 emulator is WDB38.

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PC4600 Emulator for 740 family [Discontinued Product]

Last Updated: April 22, 2002

- Is it possible to use Emulator PC4600 in combination with Emulator Debugger M3T-PD38 and Emulation Pod M38000TL2-FPD? (Apr. 22, 2002)*New!*

- Will MCUs which operate on emulator PC4701 system also operate on emulator PC4600? (Jun. 20, 2000)

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Last Updated: April 22, 2002
Document Number: 02040501_e

Q.

Is it possible to use Emulator PC4600 in combination with Emulator Debugger M3T-PD38 and Emulation Pod M38000TL2-FPD?

A.

No it isn't. M3T-PD38 and M38000TL2-FPD are available for use with the PC4701 system. They cannot be used with the PC4600 system.
You must use either WDB38 or RTT74 (an MS-DOS based, discontinued product) as the debugger for the PC4600 system. For an emulation pod, please use M38000T-POD or M38000TL-POD (both are discontinued products).

The PC4600 system, due to its being a discontinued product, may not be compatible with the MCUs which developed newly. If you have a new development project using Renesas MCUs, we recommend that you use the PC4701 emulator system.

We have two debugging platforms for our 8-bit MCUs:

1. PC4701 System

   Emulator : PC4701U
   Emulation Pod : M38000TL2-FPD
   Emulator Debugger : M3T-PD38 (Windows-based application)
   Emulator MCU : Available for each MCU

2. PC4600 System (discontinued product)

   Emulator : PC4600 + PC4000E
   Emulation Pod : M38000T-POD (bundled with PC4600) or M38000TL-POD
   Emulator Debugger : WDB38 or RTT74 (MS-DOS based, discontinued product)
   Emulator MCU : Available for each MCU

Note: When using the M38000T-POD emulation pod in combination with the PC4600 system, the pod cannot be used out of the operation clock frequency and voltage range indicated for PC4600.

Operation clock frequency and voltage range of the PC4600 + M38000T-POD combination is:

Max Operation Clock Frequency : 8MHz
Operation Voltage : 5V±5%

When debugging a target with Vcc > 4.5V, please use the PC4600 + M38000TL-POD combination. The operation clock frequency and voltage range of the PC4600 + M38000TL-POD combination is:

Max Operation Clock Frequency : 12.5MHz (Vcc = 5.0V with PC4600 high-speed version)
Operation Voltage : 2.5 - 5.5V

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Last Updated: June 20, 2000
Document Number: 01050837_e

Q.

Will MCUs which operate on emulator PC4701 system also operate on emulator PC4600?

A.

As the emulator MCUs (M3XXXXRSS, M3XXXXRFS) used on PC4600 and PC4701 system are compatible, basically any of these MCUs can be used.
However, emulator PC4600 does not support RLSS/RLFS-type emulator MCUs (M3XXXXRLSS, M3XXXXRLFS). Please do not use RLSS/RLFS-type emulator MCUs in combination with PC4600.

The following issues do affect PC4600 operations:

1. PC4600 operating frequency: max XIN = 8MHz
2. The supply voltage for PC4600 must be within Vcc = 5 ± 5%.
3. PC4600 operation cannot be guaranteed due to differences in operation timings as a result of MCU downsizing modifications. We strongly suggest replacing PC4600 with PC4701 system.

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FAQs

4-bit 4500 Series

February 5, 2004

MM (Jan. 7, 2003)	Maskfile Converter MM
ASM45 (Dec. 5, 2002)	Absolute Assembler for 4500 Series
M3T-PD45 (Dec. 22, 2003) (Originally PDB45)	Emulator Debugger for PC4504 / Absolute Assembler for 4500 Series
WDB45 (Under construction)	Emulator Debugger for DOS with assembler ASM45 (Discontinued Product)
M345xxT2-CPE (Feb. 5, 2004) UP	Compact Emulator
PC4504 (June 20, 2002)	Emulator for 4500 Series
M345xxTx-MCU (Dec. 20, 2000)	MCU Board
PCAxxxxxx-xxxx (June 5, 2001)	Programming Adapter
Others (Sep. 5, 2003)	User Registration, License ID, Guarantee and Repair, etc.

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M3T-PD45 Emulator Debugger

See Tool News for this product

Last Updated: December 22, 2003

Contents

- M3T-PD45 UP
- ASM45

M3T-PD45

- When I try to debug the program I created M34514M8, although the MCU RAM is 384 words (000h to 17Fh), the DUMP and MEMORY windows of M3T-PD45 display the data up to 1FFh. Can I use this to debug data from address 180h to 1FFh? (Dec. 22, 2003) NEW

- When I insert the MCU board in emulator PC4504, start up M3T-PD45, and try to read a data file, I get the following message: (July 22, 2002)

  "Can't find DAT file."

- I am considering using a USB-Serial conversion adapter so that I can use PC4504 with a computer that doesn't have a built-in serial port. Is it possible to use a conversion adapter to set up interface with PC4504? (June 20, 2002)

- I am developing a program for MCU M345xxxx but there is no data file for M345xxxx in M3T-PD45. Can I use a data file from another MCU to assemble and debug the program? (Mar. 5, 2002)

- No symbols are displayed in the ASM watch window or memory window. How can I get the symbols to be displayed? (Mar. 20, 2001)

- I would like to know how to set and reference the control registers, such as the timer control register, with PD45, emulator debugger for PC4504. (Nov. 6, 2000)

- I got the following error [No. 1430: measurement cannot be completed.] on PD45. What causes this error? (Aug. 25, 2000)

- When I open the register window, I get the following error: "ERROR 1400: the specified address value is out of range". How can I workaround this? (Aug. 7, 2000)

- I push the GO button and then the STOP button for the real-time measurement, and the ICE passes the range between MP Start and MP End several times. In this case, does the displayed value on the debugger window indicate the value for the first pass? And, is the debugger able to display the longest and shortest execution time? (July 21, 2000)

- I measured the interrupt generation period, but it does not match with the logical value. How can I get an accurate value? (Apr. 5, 2000)

- I get the following error when the register window is open. Why? (Nov. 19, 1999)

  "ERROR 1400: the specified address value is out of range."

- Can I reference the RAM value in real-time? (Nov. 19, 1999)

- Does PD45 support the COM2 port? (Nov. 19, 1999)

- Does one PD45 package cover both IBM PC/AT compatible and PC-9800 series computers? (Nov. 19, 1999)

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ASM45

- When I run ASM45 on Windows 2000, "run-time ERROR6009 -not enough space for environment" is displayed and ASM45 won't run properly.(Dec. 5, 2002)

- I get the following display when I execute Optimization Process 2 (OPT4P2.EXE) from branch instruction optimization program "AS4". What is the cause of this?(June 20, 2002)

```
Line NO[  xxx]    File format error.
```

- Does ASM45 support user macros definitions? (Nov. 19, 1999)

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Last Updated: December 22, 2003
Document Number: 03120503_e

Q.

When I try to debug the program I created M34514M8, although the MCU RAM is 384 words (000h to 17Fh), the DUMP and MEMORY windows of M3T-PD45 display the data up to 1FFh. Can I use this to debug data from address 180h to 1FFh?

A.

No.
M34518M8 does not have RAM that covers addresses 180h to 1FFh, so this area cannot be used for M3T-PD45 either. The display of addresses up to 1FFh in the DUMP and MEMORY windows is for M3T-PD45 display specifications.

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Last Updated: July 22, 2002
Document Number: 02070501_e

Q.

When I insert the MCU board in emulator PC4504, start up M3T-PD45, and try to read a data file, I get the following message:

"Can't find DAT file."

A.

M3T-PD45 selects and reads the data file according to the settings of the following switches located on the MCU board.

- The Switch for setting the MCU ROM size
- The Switch for setting the MCU group

You will need to make the appropriate switch settings on the MCU board for your target MCU.
For more information concerning how to set the switches, please refer to the "Switches" or "Description of Switches" section in the User's Manual of the MCU Board.

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Last Updated: June 20, 2002
Document Number: 02060501_e

Q.

I am considering using a USB-Serial conversion adapter so that I can use PC4504 with a computer that doesn't have a built-in serial port. Is it possible to use a conversion adapter to set up interface with PC4504?

A.

This should work if the device driver of the USB-Serial conversion adapter recognizes the USB port as a pseudo-serial port.

M3T-PD45 and PC4504 operate under the following settings:

Communication baud rate	: 9600bps/19200bps
Data bits	: 8
Parity	: none
Stop bits	: 2
Flow control	: Xon/Xoff

If the USB-Serial conversion adapter supports these settings, the interface should work properly. Please keep in mind that each USB-Serial conversion adapter has different limitations concerning port settings for data bits, parity, stop bits, etc., as well as limitations on which serial devices can be connected.
Please contact the adapter manufacturer for more information concerning compatibility.

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Last Updated: March 5, 2002
Document Number: 02022005_e

Q.

I am developing a program for M345xxxx but there is no data file for MCU M345xxxx in M3T-PD45. Can I use a data file from another MCU to assemble and debug the program?

A.

Unfortunately, no, you cannot use another MCU data file in this case.
Each data file contains intrinsic information concerning the target MCU. You need to have the data file specific for the target MCU in order to assemble or debug a program.

Data files for new MCUs are provided:

- in the latest version of M3T-PD45
- as a download from the Tool News Site in our homepage

Please see the M3T-PD45 Tool News for instructions on how to obtain these files.

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Last Updated: March 20, 2001
Document Number: 01050808_e

Q.

No symbols are displayed in the ASM watch window or memory window. How can I get the symbols to be displayed?

A.

The only symbols which can be specified or displayed in the ASM watch window or memory window are [ZXY symbol] and [bit symbol]. To define another symbol as the ZXY symbol, please describe it as follows:

[Definition Example]

```
sym0    .EQU 0,0,0
sym1    .EQU 0,0,1
sym2    .EQU 0,0,2
```

Note:
You can set the Z value for the symbol separately and define it as "sym0.EQU 0,0" or some other value, but it cannot be specified or displayed in the ASM watch window or memory window.

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Last Updated: November 6, 2000
Document Number: 01050809_e

Q.

I would like to know how to set and reference the control registers, such as the timer control register, with PD45, emulator debugger for PC4504.

A.

You can only use the Register Command to set or reference the control registers.

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Last Updated: August 25, 2000
Document Number: 01050810_e

Q.

I got the following error [No. 1430: measurement cannot be completed.] on PD45. What causes this error?

A.

Error 1430 is generated when the results of the measurement could not be obtained.
If this error is occurring during the startup of PD45, it is not an emulator failure at all, so please continue to use the program as is.

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Last Updated: August 7, 2000
Document Number: 01050811_e

Q.

When I open the register window, I get the following error: "ERROR 1400: the specified address value is out of range." How can I workaround this?

A.

The register window also displays the contents of RAM addresses other than the general-purpose register, as specified by the data pointer. Probably, the specified value is out of the RAM range. To avoid this problem, change the value in the Z register to the value within the RAM address range ("0", etc.) before opening the register window.

[Supplement]
You can set the Z register automatically when you startup PD45 by creating the script file as described below, and specifying it in the Init File text box in the Init dialog.

```
x z,0 <--- Set Z register to "0".
```

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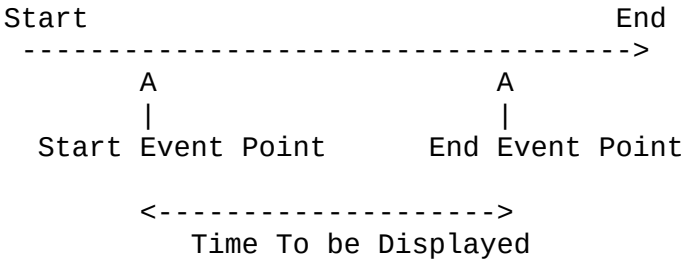
Last Updated: July 21, 2000
Document Number: 01050812_e

Q.

I push the GO button and then the STOP button for the real-time measurement, and the ICE passes the range between MP Start and MP End several times. In this case, does the displayed value on the debugger window indicate the value for the first pass? And, is the debugger able to display the longest and shortest execution time?

A.

The displayed execution value after the STOP button is pressed indicates the measured time from the event start point to the event termination point. This means that the displayed value is the value of the first pass. The debugger does not display either the longest or shortest execution time.



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Last Updated: April 5, 2000
Document Number: 01050813_e

Q.

I measured the interrupt generation period, but it does not match with the logical value. How can I get an accurate value?

A.

Please use the following steps for an accurate measurement (described on page 77 in the PD45 Manual).

1. Set the target program stop control mode to "stop".
2. Change the time measurement mode to [1. Go to Break].
3. Set the break point to the top of the timer interrupt routine after resetting the target program. Execute the program with 1 pass count option.
4. Repeat the same three steps but execute the program with 2 pass count options.
5. Measurement time 4. less Measurement Time 3. is the actual execution time.

The result 5. is the interrupt generation period.

[Reference info]
Please refer to PD45 User's Manual, page 77.

[Supplement]
The emulator monitor program executes the target program to reference registers and memory. The timer operates during the process, as well. Therefore, the timer interrupt occurs earlier than expected. This is why the actual value is often shorter than the estimated value.

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Last Updated: November 19, 1999
Document Number: 01050814_e

Q.

I get the following error when the register window is open. Why?

"ERROR 1400: the specified address value is out of range."

A.

You may be trying to access an address which is larger than the ROM size of the MCU. Please check to make sure the ROM size selection switch (rotary switch) on the MCU board is set to the ROM size of the MCU you are using.

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Last Updated: November 19, 1999
Document Number: 01050816_e

Q.

Can I reference the RAM value in real-time?

A.

No, emulator PC4505 (for PD45 use) does not have a function for referencing the RAM value in real-time.

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Last Updated: November 19, 1999
Document Number: 01050817_e

Q.

Does PD45 support the COM2 port?

A.

Yes. The COM2 port can be switched on in the opening dialog during start up of PD45.

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Last Updated: November 19, 1999
Document Number: 01050818_e

Q.

Does one PD45 package cover both IBM PC/AT compatible and PC-9800 series computers?

A.

Yes. However, the PD45 does not support the operating environment of PC-9800 Series PCs. In addition, in accordance with the licensing agreement, each product package can only be installed on one computer, to be specified by the customer.

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Last Updated: December 5, 2002
Document Number: 02111902_e

Q.

When I run ASM45 on Windows 2000, "run-time ERROR6009 -not enough space for environment" is displayed and ASM45 won't run properly.

A.

Probably the environment variable area is not large enough.
Try changing the size of the area.

To change Environment Variable Area:
Add the following line to the config.nt file stored in the Windows system directory (example: c:\winnt\system32), specifying the appropriate size in place of xxxx.

```
 :
SHELL=%SystemRoot%\system32\command.com /E:xxxx
 :
```

[Example] Specifying 2048 bytes as the environment variable area size.

```
 :
SHELL=%SystemRoot%\system32\command.com /E:2048
 :
```

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Last Updated: June 20, 2002
Document Number: 02060502_e

Q.

I get the following display when I execute Optimization Process 2 (OPT4P2.EXE) from branch instruction optimization program "AS4".

```
Line NO[  xxx]    File format error.
```

What is the cause of this?

A.

This format error occurs on OPT4P2.EXE because the area defined by the branch instruction optimization overlaps the address specified as ORG. Try revising the value of the address set with the pseudo instruction ".ORG".

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Last Updated: November 19, 1999
Document Number: 01050815_e

Q.

Does ASM45 support user macros definitions?

A.

No, it does not.

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M345xxT2-CPE Compact Emulator

See Tool News for this product

Last Updated: February 5, 2004

- I can't start up my debugger with the USB interface even though I have used it successfully before. What's the problem? (Feb. 5, 2004) NEW
- I can't install the USB Driver successfully. What could be the problem? (Feb. 5, 2004) NEW
- After installing the emulator debugger and connecting the emulator through the USB port, the new device is still not recognized by the system.(Oct. 20, 2003)

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PC4504 Emulator

Last Updated: June 20, 2002

- I am considering using a USB-Serial conversion adapter so that I can use PC4504 with a computer that doesn't have a built-in serial port. Is it possible to use a conversion adapter to set up interface with PC4504?(Jun. 20, 2002)*New!*

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M345xxTx-MCU MCU board

See Tool News for this product

Last Updated: December 20, 2000

- Can the same target system accommodate both the emulator (PC4504 and M34514T-MCU) connection and the OTP MCU (M34513E4FP) mounting? (Dec. 20, 2000)
- Is the port output state of the M34502T-MCU maintained in the RAM backup mode? (Nov. 6, 2000)
- The user's guide indicates that the VDD pin on the MCU board can supply power to the target system. How much current can the pin supply? (Oct. 20, 2000)
- Can I debug 4507 Group MCUs with the M34502T-MCU board, which is sold for the 4500 Series? (Sep. 20, 2000)
- I would like to know how to change the oscillation circuit of the M34551T2-MCU board to CR oscillation. (Jul. 5, 2000)
- Do you provide an M34551T-MCU board modification for 4555 Group MCUs?(Jul. 5, 2000)
- Is it possible to use the M34551T-MCU for the 4555 Group software debugging? Or do I have to purchase the M34551T2-MCU chip? (Jul. 5, 2000)

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Last Updated: December 20, 2000
Document Number: 01050801_e

Q.

Can the same target system accommodate both the emulator (PC4504 and M34514T-MCU) connection and the OTP MCU (M34513E4FP) mounting?

A.

The same target system can accommodate both the emulator connection and the OTP mounting by using the following methods.

1. When connecting an OTP MCU
   Solder NQPACK032SA (*1) to the foot pattern on the target system, and then mount the OTP MCU on NQPACK032SA in the order listed below:
   1. Mount the OTP MCU on NQPACK032SA
   2. Fix the OTP MCU with HQPACK032SA (*1)
2. When connecting the emulator
   Solder NQPACK032SA (*1) to the foot pattern on the target system, and then connect the M34514-MCU to NQPACK032SA in this order:
   1. YQPACK032SA(*1)
   2. YQSOCKET032SAF(*1)
   3. TQSOCKET032SAF
   4. M34513T-PTCC(*2)
   5. M34514T-MCU

Note *1

These products can be purchased from:

Tokyo Eletech Co., Ltd.	
TEL, FAX	refer to our Partners site
E-Mail	info@tetc.co.jp
URL	http://www.tetc.co.jp/e_tet.htm

Note *2

M34514T-MCU comes with M34513T-PTCC, a pitch converter board for the 32LQFP package, and consists of the parts listed below. When using the OTP MCU mounting and the emulator connection together, items #3 and #4 are not necessary.

1. M34513T-PTCC
2. TQSOCKET032SAF
3. TQSOCKET032SAP
4. TQPACK032SA

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Last Updated: November 6, 2000
Document Number: 01050802_e

Q.

Is the port output state of the M34502T-MCU maintained in the RAM backup mode?

A.

The port output state is maintained in the RAM backup mode of the actual MCU, but not in M34502T-MCU. When using M34502T-MCU, "H" level is output to ports D, P0, and P1 during the backup mode. After returning from the RAM back-up mode, the pre-backup mode state is output to the ports. In other words, "L" level will be output to ports D, P0, and P1. Therefore, we recommend that you evaluate your system using the evaluation MCU (OTP version).

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Last Updated: October 20, 2000
Document Number: 01050803_e

Q.

The user's guide indicates that the VDD pin on the MCU board can supply power to the target system. How much current can the pin supply?

A.

The VDD can supply approximately 10 ICs (C-MOS) of power to the MCU board. If the current consumption of the user's system consumes more than this capacity, the emulator-side power load becomes larger and the MCU may not be able to supply the full amount of voltage. This may cause the emulator to malfunction. Therefore, we suggest you prepare a separate power-supply source for the user's system.

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Last Updated: September 20, 2000
Document Number: 01050804_e

Q.

Can I debug 4507 Group MCUs with the M34502T-MCU board, which is sold for the 4500 Series?

A.

4507 Group specifications are covered by the 4502 Group specifications but do not include 4507 the following 4502 Group functions:

1. Voltage-drop detection circuit (not included in 4507 Group)
2. Power-on reset circuit (not included in 4507 Group)
3. Medium Withstand Voltage Port (4507 Group has normal port only)

Because evaluation of the voltage-drop detection function and power-on reset function are not performed on the MCU board, the differences between these groups when used on the MCU board are emulation port input characteristics. The 4502 Group covers the port input characteristics of 4507 Group. Therefore, there is no problem with using M34502T-MCU to debug the 4507 Group MCUs.

The ASM45 assembler does not have any problem with generating 4502 group exclusive instructions as it already uses the 4507 Group data. However, the value set in the register cannot be checked by ASM45, so please take caution when setting the value in the register when you are programming.

* For 4507 Group data files, please download file m34506.exe (self-extracting compressed file) from MESC TOOL NEWS "Announcement of New MCUs Supported by PD45" issued on September 1, 2000. Refer to the same TOOL NEWS for instructions concerning extraction and execution.

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Last Updated: July 5, 2000
Document Number: 01050805_e

Q.

I would like to know how to change the oscillation circuit of the M34551T2-MCU board to CR oscillation.

A.

The M34551T2-MCU board does not work with CR oscillation. You must use the evaluation MCU for the CR oscillation evaluation.

[Supplement]
When the PC4504 emulator MCU board uses the X_{OUT} pin as an output pin in the emulation mode operation, the X_{IN} pin is only available for chip oscillation. Therefore, CR oscillation, which requires both X_{IN} and X_{OUT} pins, is not possible on this board.

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Last Updated: July 5, 2000
Document Number: 01050806_e

Q.

Do you provide an M34551T-MCU board modification for 4555 Group MCUs?

A.

No, we don't. We have the M34551T2-MCU pod for this purpose. Please note that we have no such board modification service.

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Last Updated: July 5, 2000
Document Number: 01050807_e

Q.

Is it possible to use the M34551T-MCU for the 4555 Group software debugging? Or do I have to purchase the M34551T2-MCU chip?

A.

Yes, you can do the debugging as you described, but it is very limited. When you apply the M34551T-MCU pod to 4555 Group software debugging, you cannot use the key-on wake-up function of the 4555 D5/INT pin.

Also, there is no OTP version available for the 4555 Group MCU; therefore, you have no way to evaluate or debug this key-on wake-up function. We recommend upgrading to the M34551T2-MCU pod for 4555 Group developments. The pod is equipped with the eva-chip covering all group MCUs and can be used as an evaluation board. (Please note that the evaluation board cannot provide all features. Use the M34551E8BFP chip to fill in the areas of limitations on the board.)

In summary, if you do not use the D5/INT key-on wake-up function, there is no problem with using the M34551T-MCU for 4555 Group developments. There is also no problem with using the M34551E8FP OTP chip.

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4500 Programming Adapters

See Tool News for this product

Last Updated: June 5, 2001

- What is the difference between PCA7442FP (discontinued products) and PCA7442FPG02? (Jun. 5, 2001)
- I cannot remove the MCU from PCA7442FP. (Jun. 5, 2001)
- For some reason, I can not program my Renesas MCU. What are the possible problems? (Dec. 20, 1999)

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Last Updated: June 5, 2001
Document Number: 01050941_e

Q.

What is the difference between PCA7442FP (discontinued products) and PCA7442FPG02?

A.

PCA7442FPG02 uses a new socket compatible to the new MCU package (the package has been changed from 32P6B to 32P6U). When the MCU of the new package (32P6U) is attached with PCA7442FP, you may not be able to insert or remove the MCU to/from the adapter socket. We offer an adapter replacement service for users who purchase the newly packaged MCU and are already using PCA7442FP.
For more information, please refer to MAEC TOOL NEWS "Announcement Free Replacement of Programming Adapters PCA7435GPG02, PCA7435GP, and PCA7442FP" issued on May 16, 2001.

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Last Updated: June 5, 2001
Document Number: 01050942_e

Q.

I cannot remove the MCU from PCA7442FP.

A.

PCA7442FPG02 uses a new socket compatible to the new MCU package (the package has been changed from 32P6B to 32P6U). When the MCU of the new package (32P6U) is attached with PCA7442FP, you may not be able to insert or remove the MCU to/from the adapter socket. We offer an adapter replacement service for users who purchase the newly packaged MCU and are already using PCA7442FP.
For more information, please refer to MAEC TOOL NEWS "Announcement Free Replacement of Programming Adapters PCA7435GPG02, PCA7435GP, and PCA7442FP" issued on May 16, 2001.

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FAQs

4-bit 720 Series

November 20, 2003

MM (Jan. 7, 2003)	Maskfile Converter MM
M3T-RTT72 (Nov. 20, 2003) UP	Emulator Debugger for PC4400 / Absolute Assembler for 720 Series
PC4400 (Under construction)	Emulator for 720 Series (PC4000E + PC4400 + PCA4400A)
M342xxT5-OPT (Under construction)	Option Board
M34250T-SET (July 5, 2000)	Emulator for 4250 Group (All-in-one Type) (Discontinued Product)
PCAxxxxxx-xxxx (Dec. 20, 1999)	Programming Adapter
Others (Sep. 5, 2003)	User Registration, License ID, Guarantee and Repair, etc.

720 Series Index | FAQs Index

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M3T-RTT72 Emulator Debugger for PC4400 / Absolute Assembler for 720 Series

See Tool News for this product

Last Updated: November 20, 2003

- Does M3T-RTT72 run on Windows 2000? (Nov. 20, 2003)*Updated*
- Can I execute M3T-RTT72 using the MS-DOS prompt in Windows 98/95? (May 20, 2002)

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Last Updated: November 20, 2003
Document Number: 03012001_e

Q.

Does M3T-RTT72 run on Windows 2000?

A.

Yes, M3T-RTT72 can operate with the command prompts in Windows 2000 which is operating on an IBM PC/AT compatible machine. Assembler ASM72, bundled with M3T-RTT72, also runs on Windows 2000.
* However, we recommend the following as the optimum operating environment.

Host Machine	OS
IBM PC/AT compatible	DOS V.3.3X, V.5.0, V.6.20

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Last Updated: May 20, 2002
Document Number: 02051001_e

Q.

Can I execute M3T-RTT72 using the MS-DOS prompt in Windows 98/95?

A.

Operation of M3T-RTT72 in Windows 98/95 is not supported: communication data may be lost when using the MS-DOS prompt (DOS window). On the other hand, there are no problems with using M3T-RTT72 in the MS-DOS mode. So, if you are using the device on a PC with Windows 98/95, simply use it in the MS-DOS mode. Assembler ASM72, on the other hand, does execute properly with the MS-DOS prompt.

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M34250T-SET Emulator for 4250 Group (All-in-one Type) [Discontinued Product]

Last Updated: July 5, 2000

- What does to top part of the M34250T-SET look like? (Jul. 5, 2000)

720 Series FAQ Index | FAQ Index

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Last Updated: July 5, 2000
Document Number: 01050820_e

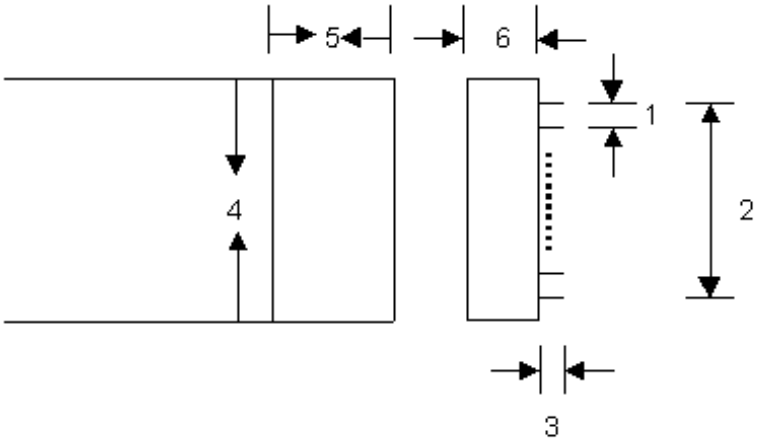
Q.

What does to top part of the M34250T-SET look like?

A.

The M34250T-SET board connects the emulator probe headers (2.54mm pitch, 20-pin headers) to the 20-pin IC socket (20P4B type) of the target system. The header pin layout is the same as the MCU pin layout. The pin header is a Yamaichi FGP-20-01# and the dimensions are as follows:

1. Pin pitch-1: 2.54mm
2. Pin pitch-2: 22.86mm
3. Pin pitch-3: 3.0mm
4. Length: 27.6mm
5. Width: 12.7mm
6. Height: 6.5mm



Please note that there are no converter jigs to connect the probe to the MCU package (20P2N-A or 20P2E-A) foot pattern directly.

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720 Programming Adapters

Last Updated: December 20, 1999

- For some reason, I can not program my Renesas MCU. What are the possible problems? (Dec. 20, 1999)

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Last Updated: July 5, 2000
Document Number: 01051113_e

Q.

What kind of components does the M30201T-56FP pin converter board include?

A.

The M30201T-56FP product includes the following three components:

1. M30201T-56FP (TQSOCKET056SBF is already mounted on the back surface).
2. TQSOCKET056SBP
3. TQPACK056SB

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Last Updated: May 20, 2002
Document Number: 02051002_e

Q.

There is a switch on the M37530T-PTCC converter (used for connecting 42-pin RSS type emulator MCU), which switches operation from/to M37531RSS (7531 emulator MCU) and M37532RSS (7532 emulator MCU). Which side should I set it to when using M37540RSS (7540 emulator MCU)?

A.

When using M37540RSS, set the switch to the 7531 side.

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Last Updated: April 20, 2000
Document Number: 01051117_e

Q.

1. How can I attach SEAL100FP to a universal board?
2. What do the resist and land shape of the seal board look like?

A.

1. Connection to a universal board
   The back plane of SEAL100FP is actually a sticker. Please mount the contact-lands of SEAL100FP on the contact holes of the universal board then solder every connection point.

2. Resist and conductive lands
   Please refer to the Accessory Guide for the SEAL100FP

   The shape of the land contact of SEAL100FP is a Ø1.5 mm half-circle.

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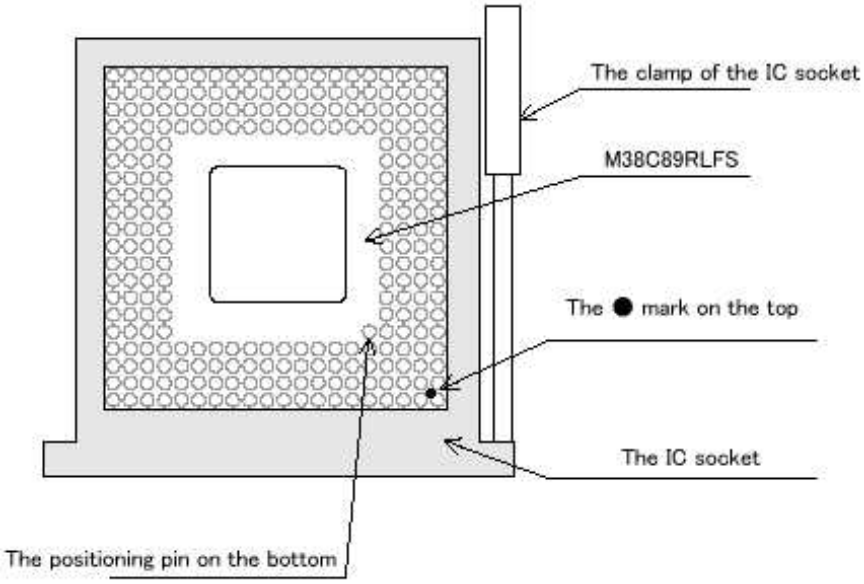
Last Updated: November 5, 2002
Document Number: 02102101_e

Q.

I am trying to mount the M38C89RLFS (38C8 Group) to the temporary target board M38C89T-ADF.
In the M38C89T-ADF Manual, it instructs to mount the MCU in the direction of the marking on the top of the MCU. However, I cannot find any markings on the top of M38C89RLFS and cannot determine the proper mounting direction.

A.

When there are no markings on the M38C89RLFS, please mount in the following manner:There is either a ● mark on top of the M38C89RLFS or one extra pin on the bottom (the positioning pin). Raise the clamp of the IC socket on the M38C89T-ADF and attached the M38C89RLFS according to the following diagram.



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Last Updated: September 20, 2000
Document Number: 01051111_e

Q.

The accessory Guide indicates that 42DIP-DMS must be used with DIRECT42-450-50. Can I use SSOP42B-450 instead of DIRECT42-450-50?

A.

Yes. No problem.
The connector for both SSOP42B-450 and DIRECT42-450-50 is the same. Both of the connections listed below will work.

Using DIRECT42-450-50:

MxxxxxRSS => 42DIP-DMS => DIRECT42-450-50 => target system

Using SSOP42B-450:

MxxxxxRSS => 42DIP-DMS => SSOP42B-450 => target system

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Document Number: 02110502_e

Q.

Can I use the Dummy IC M3T-DUMMY64 socket (AXS4643R19K; normally used for 64-pin, 0.8mm pitch QFP 64P6N-A package MCUs) with 64-pin, 0.8mm pitch LQFP 64P6U-A package MCUs?

A.

The M3T-DUMMY64 socket is not compatible with 64-pin, 0.8mm pitch LQFP 64P6U-A package MCUs. Although the foot patterns of both packages are the same, the 64P6U-A package has shorter leads and wider lead-width compared to that of the 64P6N-A package.

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Last Updated: July 5, 2000
Document Number: 01051115_e

Q.

Can I use Matsushita (National) Electronics IC socket AXS4806M19C (screw-on type) as the socket to attach the dummy IC, DUMMY80?

A.

Dummy IC sockets not recommended by Renesas have not been tested and cannot, therefore, be guaranteed. When using DUMMY80, please use Matsushita (National) Electronics IC socket, AXS4803M19.

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Last Updated: July 5, 2000
Document Number: 01051116_e

Q.

Can I use Yamaichi Electric's IC socket for attaching the dummy IC, DUMMY100S?

A.

Dummy IC sockets not recommended by Renesas have not been tested and cannot, therefore, be guaranteed. When using DUMMY100, please use Matsushita (National) Electronics IC socket, AXS4003M291.

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Last Updated: July 5, 2000
Document Number: 01051112_e

Q.

Is it possible to connect the FLX-80QSB to the FLX100-T/R pin direction converter board?

A.

The probe of the FLX100-T/FLX100-R is shaped specially for a direct connection with the FLX100 pod in combination with the converter board. Therefore, FLX100-T/R can be connected between the FLX-80QSB and the pod probe. For an example connection, please refer to this page of the Accessory Guide in our Tool Homepage.

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To:
Subject: User Registration Completion Notice [product number]
From: regist_tool@renesas.com

==========

Issue Date: (Month)/(Day)/(Year)

[S/W or H/W Tool User Registration Completion Notice]

Issued by: Renesas Technology Corporation
Tool User Registration Desk
E-Mail: regist_tool@renesas.com

Thank you for purchasing a Renesas development tool product.
We have completed your product registration and you are now an officially registered user.
Please confirm the information below to make sure everything is correct.
If you find any discrepancies, contact the Tool User Registration Desk as soon as possible.

We look forward to servicing you in the future.

-- Registration Confirmation --

Registration Date: (Month)/(Day)/(Year)

Company name:
Department name:
Contact:
Tel.:
FAX:
e-mail:
Address:
Country:

Product name:
OS type:
License ID:

Product name:
OS type:
License ID:

When you need to make changes to the registration information stated above, please fill out the following User Registration Modification/Termination Request Form.
Send both the original Registration Completion Confirmation (above) and the modification/termination form to the Tool User Registration Desk via e-mail.

---

* Please check either of the following items.
_ User Registration Modification Request Form
_ User Registration Termination Request Form

[To Users who wish to terminate their registration]
Please let us know the reason for terminating your registration in order for us to improve our support services in the future.
(Example: completion of development)

[Revised registration information]
Company name:
Department name:
Contact:
Tel.:
e-mail:
Address:
Country:
==========

To: User Registration Desk <regist_tool@renesas.com>
Subject: User Registration Contents Confirmation Request

[Registered User Information]
Company name   :
Department name :
User name   :
e-mail   :
Address   :

For requests from persons other than the officially register user,
please fill in the following items as well.

[For information requests]
Name   :
Department name :
e-mail   :

[Comments]

To: User Registration Desk <regist_tool@renesas.com>
Subject: User Registration Modification Request Form

User Registration Modification Request Form

The details concerning your current registration

[Customer Contact Information]
Company name :
Department name:
User name :
e-mail :
Address :

[Product Details]
Software Product
Product name :
Version number:
License ID (or Serial No.):

Hardware Product
Product name :
Serial No. :

* If you want to confirm the details concerning your current registration, please contact the User Registration Desk (address above).

The details concerning your new registration

Company name :
Department name:
User name :
Tel. :
e-mail :
Address :
Country :

Comments

To: User Registration Desk <regist_tool@renesas.com>
Subject: User Registration Termination Request Form

User Registration Termination Request Form

The details concerning your current registration

[Customer Contact Information]
Company name :
Department name:
User name :
e-mail :
Address :

[Product Details]
Software Product
Product name :
Version number:
License ID (or Serial No.):

Hardware Product
Product name :
Serial No. :

* If you want to confirm the details concerning your current registration, please contact the User Registration Desk (address above).

The reason for terminating

Please let us know the reason for terminating your registration in order for us to improve our support services in the future.
Example: completion of development
( )

User Registration Information for Software Tool License ID

User Registration Form

Date: (Month)/(Day)/(Year)

TO:
Renesas Solutions Corporation
User Registration Desk (e-mail: regist_tool@renesas.com)

Customer Contact Information

Company name	:
Address	:
Department name	:
Contact	:
Tel	:
e-mail	:

Product Details

Software name	:
Version number	:
Host machine	:
OS	:
License ID	:

Comments:

Technical Support Communication Sheet

Date: (Month)/(Day)/(Year)
TO: Distributor

Customer Contact Information
- Company name :
- Address :
- Department name :
- Contact :
- Tel :
- FAX :
- e-mail :

Product Details
- Software name :
- Version number : V._____ Release _____
- Host machine :
- OS :
- License ID :

Debug-related information (complete this section only if debug was performed on an emulator)
- MCU product name :
- Emulator name :
- Emulator serial number :
- Communication interface :
- Pod name :
- Pod serial number :

Comments

To: User Registration Desk <regist_tool@renesas.com>
cc:
Subject: License ID Confirmation
(via Mitsubishi Electric sales office or distributor
to which you purchased the product)

To be completed by User

[Product Details]
Product number :
Version :
Release :
Date purchased :
OS type :

[User Information]
Company name :
Department name :
User name :
e-mail :
Address :

[Comments]

To be completed by Distributor

Purchase Order number*:

*Purchase order number used when submitting order to Renesas Solutions Corp..
This will be used to retrieve the customer license ID number.

[Distributor Information]
Company name :
Department name :
Sales Rep name :
e-mail :
TEL :
Address :

[Comments]

To: User Registration Desk <regist_tool@renesas.com>
Subject: Lost License ID Form

The following all items apply to me.
 * License ID Certificate   : lost
 * User registration status : not registered
 * Host   : none
   (machine installed on)
 * CD-ROM   : none
 * Purchased from   : unknown
   (name of representative)
 * Purchase order number   : unknown

[Product Details]
Product number :
Version   :
Release   :
Purchase date :
OS type   :

[User Information]
Company name   :
Department name :
Contact   :
e-mail   :
Address   :

[Comments]